CEYLON.

PART IV.—EDUCATION, SCIENCE, AND ART (D).

Administration Report of the Director of Agriculture for 1926.

IMPERIAL BUREAU OF MYCOLOGY
28 OCT 1927

(F. A. STOCKDALE, Esq.)

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DEPARTMENT OF AGRICULTURE.

REPORT OF THE DIRECTOR OF AGRICULTURE FOR 1926.

SECTION I.

AGRICULTURE IN CEYLON.

RAINFALL was in deficit during the year over the whole Island. The south-west monsoon was light in the centre of the Island and in consequence tea crops were satisfactory. The early part of the year was very dry except in the Province of Sabaragamuwa, and in April, rainfall was seriously in deficit over three-fourths of the Island. Thunderstorms were frequent and consequently the distribution of rainfall was patchy. The south-west monsoon broke early in May and the rainfall during that month was above normal. The monsoon was mild and although the number of rainy days during June were more than usual in the Central Province, the total rainfall for the month was in deficit. Only in the Kelani Valley and in parts of the Province of Sabaragamuwa was the rainfall above the average. July was a wet month particularly in the Western Province, Sabaragamuwa, and the Central Province. The first week of August was wet, but thence onwards until the end of the year rainfall was in deficit. The Central Province and Uva were very dry in September and October, and in fact certain portions of the tea in Uva suffered severely from drought during the latter half of the year. The north-east monsoon rains came very late indeed, and were generally considerably below normal. The chena crops of the Hambantota District and in the North-Central Province suffered very considerably from the want of adequate rains during this north-east season, and shortage of food crops will be the result in these areas. In the North-Central Province it has been decided that special chenas for gingelly will have to be given as the consequence of this failure of a good north-east season.

Tea.

2. The season was from the climatic point of view not as favourable as the previous year. On the wet side of the Island the season was slightly better than normal on account of the mild south-west monsoon, but on the Uva side of the Island rainfall was very short, particularly in the latter part of the year. The total exports amounted to 215,819,449 lb. of black tea and 1,364,217 lb. of green tea of a total value of Rs. 213,163,883, as against an export of 208,464,971 lb. of black tea and 1,326,413, lb. of green tea of a total value of Rs. 199,697,534 in 1925. This increase in export is doubtless the result of better cultivation methods and of the adoption of liberal manuring programmes. Prices in the early part of the year were high, but they became lower during the second part of the year as a consequence of heavy crops in India. The average price for local sales was 99 cents per lb., as against 96 cents per lb. during the previous year. The quality of teas was not as high as that of 1925, and it is reported that certain teas of inferior quality were placed on the market during the year. It is again emphasized that fine quality teas always command a ready sale at good prices whilst teas of inferior quality or manufacture fetch only poor prices when the market is depressed. Ceylon tea has a special market value on account of its quality and every effort should therefore be made to maintain the standard of quality at the highest possible level.

3. Tea generally looks healthy and vigorous. There are, however, certain areas which are distinctly yellow. These areas have been under observation for some time and it would appear that they are the most noticeable on estates which have not adopted the policy of planting shade trees. It is conceivable that shade trees such as Dadap, Gliricidia, Albizzia, Grevillea, &c., through their rooting systems afford additional drainage, and the tea in the areas under reference has the appearance of being on washed land with inadequate drainage. Interest in soil erosion continues to be taken, but much more will have to be done before the situation can be considered to be satisfactory. In tea, *Indigofera endecaphylla* has again given the best results as a cover crop and appears to thrive from comparatively low elevations up to over 5,000 feet. It has been planted on quite a number of estates, and the effects of this cover crop in the building up of soil and in preventing soil erosion is being closely watched. The agricultural methods of dealing with *Indigofera endecaphylla* are not yet fully decided upon, and in consequence experimental work is being continued. On the Experiment Station at Peradeniya, *Indigofera endecaphylla* has been planted in a fair area of tea—the yield records of which were known for years—with a view to testing whether the growing of this cover crop in tea has any effect on yields. Up to the end of the year no depressing effect was recorded, and it is anticipated that with satisfactory agricultural treatment the growing of a cover crop will cause no depression of crops but will give an increase in yields with the gradual soil improvement that is bound to occur. *Gliricidia maculata* continues to spread as a permanent green manure and the Department always has demands for cuttings considerably in excess of the supply. This plant has become popular in the Southern Province where it is being planted in areas in which Albizzias have been dying out, and it is also becoming sought after for the Ratnapura District of the Province of Sabaragamuwa. *Gliricidia maculata* is attacked in some areas by certain sucking insects, including

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the scales which occur on tea in the Haputale district. It is, therefore, advised by the Entomological division of the Department that *Gliricidia* should not be planted in those areas where scales on tea occur, as otherwise it may act as host plants for the spread of the scales to the tea. Planters are therefore advised to watch for the occurrence of scales affecting *Gliricidia* and to report cases to the Entomological division of the Department.

4. The shot-hole borer of tea is causing no trouble at the present time in consequence of the improved cultivation and manuring now being given to tea in all districts. Tea tortrix has occurred in various districts, but the damage is not reported to have been greater than usual. Further investigations into the life history of this pest were continued during the year by the Entomologist of the Department of Agriculture, and it has been decided that further investigations on this pest shall be undertaken by the newly organized Tea Research Institute. The termites attacking tea have received special attention during the year from the Assistant Entomologist. There is little doubt that these pests of tea constitute the most serious problems which the tea industry has to face at the present time. Estates are beginning to realize the damage that they are causing, and there is little doubt that the most important point in regard to termite control is the prevention of an extension of the area attacked. This will demand a much closer and more careful attention to the treatment of wounds. Wood rot in many districts is bound up with termites, and it is possible that if the former could be checked or prevented less damage would be occasioned by the latter. The fungi associated with wood rot are being investigated and a series of manurial experiments have been started at Peradeniya in an area of pruned tea affected with wood rot to ascertain, if possible, to what extent the bushes can be induced to heal over decaying areas. Green bug and brown bug in the Haputale district have been further investigated and suggestions made for control measures. *Cercosporella theae* caused damage again on certain estates and has been the subject of investigation by the Mycologist of the Tea Research Institute.

5. The extension of the tea-growing area continues, especially in the Balangoda area, and prices for tea seed ruled high during the year on account of the increased demand. Some requests have been made for the relaxation of the restrictions against the import of seed from India, but the necessity of safeguarding against the introduction of blister blight makes any such relaxation impossible. Imports of tea seed from the Dutch East Indies amounted to 424 lb. during the year, as against 17,707 lb. during the previous year. The total number of plants transferred under permit during the year was 4,451,877, as against 4,020,253 during the previous year. The number of prosecutions for removal of plants without permits prescribed by the Shot-hole Borer regulations was 8.

6. Improvements in factory equipment continue to be made and special attention is now being given to withering and fermentation.

Rubber.

7. From February 1, 1926, an increase of a further 15 per cent. to 100 per cent. of standard production was allowed under the Restriction Scheme, and this percentage was maintained throughout the year until November, when a reduction of 20 per cent. was made. Certain alterations were made in the Restriction Scheme during the year in order to permit of more elasticity in the adjustment of releases. The total exports amounted to 63,621 tons of a value of Rs. 184,423,215, as against 45,618 tons of a value of Rs. 169,992,247 in 1925. The export of latex amounted to 11,896 gallons of a value of Rs. 41,803, as against 6,748 gallons of a value of Rs. 27,364 in the previous year, and stocks in godowns of members of the Colombo Rubber Traders' Association amounted at the end of the year to 5,090 tons and unused export-right coupons amounted to approximately 15,000 tons.

8. The average price of top grades for local sales was Re. 1·21 as against Re. 1·73 during the previous year. The prices were low in the first four months of the year and then recovered until August. In December there was a further decided decline in the market which became weak. The quality of both crepe and sheet rubber was well maintained. With a weak market buyers looked for undesirable features and in consequence general quality was maintained at a high level. Mould on sheet is now not so common as it used to be on account the use of paranitrophenol and rust is now rarely seen on first class estate rubbers on account of greater care being taken with ventilation and drying.

9. The use of formic acid as a coagulent instead of acetic acid is becoming more general and appears to be proving to be quite satisfactory. Some complaints were received by the Rubber Research Scheme in regard to rubber made with formic acid and certain investigations have been commenced.

10. The abnormal leaf fall caused by *Oidium* in the report for 1925 did not occur in the year under review. Only one estate reported its occurrence. Outbreaks of secondary leaf fall caused by *Phytophthora* sp. ~~recommenced~~ occurred in the Kalutara and Kelani Valley districts and a considerable amount of defoliation took place. Manuring appears to have brought about some improvement in regard to this disease, as manured trees appear to maintain a thicker foliage on them after the outbreak of secondary leaf fall than do trees which have not been manured. Spraying for secondary leaf fall which has been widely adopted in South India was tried on a number of estates in Ceylon during the year, and several demonstrations were given by the officers of the Rubber Research Scheme in various districts. The result of the first year's experiments was not very encouraging and it seems to be doubtful whether the results obtained warrant the expenditure. Further trials will, however, be made and improved pumps have been promised for experimental work during the next year. Root diseases are now kept under control, but a change in view point regarding root diseases may have to be made in view of the conclusions by Dr. Small, the Mycologist of the Department of Agriculture, that the fungus *Rhizoctonia bataticola* is the common cause of root disease of plants in Ceylon and is the forerunner of *Fomes*, *Ustulina*, *Xylaria*, and other root diseases of rubber in Ceylon. Bark diseases have continued to receive close investigation, and as the result of work done by the Mycologist to the Rubber Research Scheme, it is now recommended for the control of bark rot that an application of Cargillineum mixture every ten days should be made to that portion of the bark which had been tapped during that period, in addition to the preventive application of 5 per cent. Brunolineum after every tapping. Brown bast has been on the increase during the year, and should be

carefully watched. Several areas which were formerly affected have been treated and have shown satisfactory recovery. The scraping method combined with isolation is recommended for Ceylon conditions. The rubber industry should watch most closely the incidence of brown bast as it is quite conceivable that brown bast will play an important part in the ultimate yields from old estates. Most estates have continued their manuring programmes and an increase in health and vigour of the trees has resulted. It is not yet certain whether increased yields are being secured as the result of manuring. All experimental work so far conducted does not give any indicated increases in yields but some estates have reported improvements. A carefully planned experiment is being carried out by the Rubber Research Scheme.

11. Further attention has been given on rubber estates to the prevention of soil erosion and to the building up the soil of old washed-out areas. Some good results have followed the covering of exposed roots by means of terracing, and interest is attached to the experimental use upon one estate of controlled floods in the "warping" of lands which were lowlying and which were showing very considerable root exposure. The use of *Vigna oligosperma* as a cover crop in rubber is being seriously taken up and there is little doubt that this plant is in a large section of the country the best for use under the shade of old rubber. In certain sections at higher elevations it has been found difficult to establish *Vigna* but *Teramnus* is being utilized in its place. *Centrosema pubescens*, *Vigna oligosperma*, and *Tephrosia candida* are commonly used in young plantations, whilst several estates are making use of indigenous species of leguminous plants especially *Desmodium* spp. The system of terracing for rubber plantings evolved by Mr. C. E. A. Dias is finding acceptance by a number of estates, and a considerable number of young plantings of rubber are being opened on this contour platform terrace system. This should do much towards preventing soil erosion from these areas and it is pleasing to find that the planting community is now paying very serious attention to this aspect of Ceylon's agriculture. Soil preservation and the maintenance of its humus content is essential for stability and permanency and it is gratifying to find that continued attention is now being given to them. With terracing and the proper use of cover crops much can be done to improve and to maintain Ceylon's upland soils—soils which have too often in the past found their way very rapidly to the sea.

12. The Rubber Research Scheme continues to receive increasing support, the number of subscribers being 211 at the end of 1926, as against 199 the previous year. The acreage of members represents about 62 per cent. of the total rubber acreage in the Colony. Considerable attention has been drawn during the year to the importance of bud-grafting rubber as a means of selection. This has been demonstrated in the Dutch East Indies and the visit of Messrs. C. E. A. Dias and H. W. Roy Bertrand to see what had been accomplished tended to centre the attention of Ceylon rubber planters on this question. The present position has been placed as clearly as possible before the industry and proposals have been formulated by the Estates Products Committee of the Board of Agriculture for a forward policy. These proposals appear to have received the support of those connected with the industry and there is no doubt that if Ceylon is to maintan its industry in a position to meet with competition in the future, steps must be taken to provide the necessary funds for the establishment of special Experiment Stations for testing out mother trees and of seed gardens for the supply of selected seed. A large number of estates are now taking yield records preparatory to starting budding.

13. Special attention was given to the question of the selection of rubber during the year. All the seed available from high yielding trees on the Experiment Stations or in the Gardens of the Department were collected separately. The following seed was sold during the year :—

	Gardens.	Experiment Stations.	Total.
Group 1.—Selected seed from high yielders	52,100 ..	41,770 ..	93,870
Group 2.—Seed from the progeny of No. 2 tree, Henaratgoda ..	41,900 ..	51,610 ..	93,510
Group 3.—Unselected seed ..	— ..	— ..	827,050
			1,014,430

In addition to the above 1,500 seed from Henaratgoda No. 2 tree and 4,509 seed from selected high yielders in the progeny of No. 2 tree have been planted in the nurseries of the Department and the Rubber Research Scheme for experimental purposes. Plans were also made to have bark examinations of all trees in the possession of the Department, and certain of its highest yielding trees were lopped to provide budwood for budding purposes. 415 feet of budwood of Henaratgoda No. 2 tree were sold during the year.

Coconuts.

14. The exports of coconut products and their value during 1926 were as follows :—

		Value. Rs.
Coconuts, fresh	16,951,386 nuts ..	1,393,682
Copra	2,419,398 cwt. ..	39,848,479
Desiccated	754,367 cwt. ..	17,275,984
Oil	570,463 cwt. ..	15,489,320
Poonac	160,277 cwt. ..	869,011
Fibre, bristle	154,132 cwt. ..	1,149,866
Fibre, mattress	303,102 cwt. ..	927,823
Coir yarn	107,885 cwt. ..	1,831,138

15. These exports of coconut products were, as a whole, slightly lower than during the previous year. Exports of fresh nuts showed a very marked decline, but the export of copra was in excess of that of the previous year. Complaints continue to be received regarding the quality of Ceylon copra, and it would appear that improvement could be effected if the use of immature nuts for making copra could be prevented and if the mixing of various qualities could be stopped. Prices, on the whole, were satisfactory—the highest prices being obtained in June. Prices for desiccated coconut were low—being at times only slightly above the cost of production and in consequence Government decided to reduce the export duty on this product. Fibre exports were slightly less than that of the previous year.

16. Cultivation methods remain about the same with some increase in ploughing in certain areas. Pests and diseases were not more prevalent than usual, but considerably more attention has been paid to them in the North-Western Province. Tapering is common in some estates and is the subject of investigation. Caterpillar in the Eastern Province was decidedly less prevalent than in some previous years but its occurrence in the North-Western Province was found to be more common than was anticipated. In this Province, the pest is, however, adequately parasitized and in consequence is generally kept in natural check. Plant Pest Inspectors have continued to do good work amongst small holders of coconuts and a series of coloured posters has been prepared. Two were completed and were ready for issue at the end of the year and a further two were in the press.

Paddy.

17. The north-east season paddy crops were on the whole satisfactory, but suffered in certain areas in the east and north-eastern parts of the Island from floods. Harvesting of this crop was somewhat interfered with by rains in the Kegalla and Ratnapura Districts. The south-west monsoon was early and good areas under the yala crop were sown. In fact many areas in the Central Province grew yala crops on lands which had not been so cultivated for several years and the yala crops were generally very satisfactory. The north-east monsoon rains of 1927 were late and short. In consequence the prospects for the end of the year maha crop are not promising. In many districts insufficient water was present in the tanks and cultivation had to be delayed and in some instances abandoned altogether. The prospects for the crop to be reaped in the early part of 1927 are decidedly below normal and some distress may be anticipated in some areas.

18. The sirupokam crop under the new Karachchi Scheme was very satsifactory, and in consequence confidence in the prospects of lands under this scheme has been restored and the demands for land have increased. The establishment of the Government Seed Farm at Paranthan under the scheme has been appreciated.

19. Considerable progress has been made with the establishment of paddy seed stations for the supply of pure-line seed and tested seed suitable for various localities will shortly be available in increasing quantities. Yields of 10–22 per cent. in excess of the average yields of locally-grown mixed types have been secured in the first series of field trials.

20. Swarming caterpillar did considerable damage in certain areas in the Eastern Province and in the Hambantota District, whilst damage from paddy bug was experienced in some sections particularly in the Southern Province.

Cacao.

21. The exports of cacao amounted to 64,750 cwt. of a value of Rs. 1,953,684, as against 68,788 cwt. of a value of Rs. 2,318,579 during the previous year. The spring crop was satisfactory but the autumn crop was small owing to the dry weather conditions which prevailed. The quality of the crop was very good but prices ruled low throughout the year. The replacement of cacao in some areas by rubber still continues and the acreage under this crop continues to decline.

Cardamoms.

22. The exports amounted to 2,848 cwt. of a value of Rs. 842,318, as against 3,302 cwt. of a value of Rs. 1,149,192 during 1925. The crop was reduced somewhat on account of dry conditions and prices were irregular. On the whole the prices realized, especially for the bleached product, were satisfactory and certain new clearings were planted out with this crop during the year.

Citronella.

23. Exports amounted to 1,431,351 lb. of oil of a value of Rs. 1,774,326, as against 1,415,639 lb. of a value of Rs. 2,259,465 during the previous year. Prices declined during the early part of the year and thence onwards remained at a low level which moved in sympathy with the prices, quoted for Java oils.

Cinnamon.

24. The exports of cinnamon quills were 31,241 cwt. of a value of Rs. 3,985,238, as against 30,244 cwt. of a value of Rs. 2,967,153 during the previous year, and of cinnamon chips were 11,874 cwt. of a value of Rs. 225,012, as against 12,136 cwt. of a value of Rs. 200,829. The exports showed some increase largely as the result of keener demand at comparatively high prices during the middle of the year.

Fibres.

25. The exports of sisal hemp amounted to 5,236 cwt. of a value of Rs. 167,700, as against 3,422 cwt. of a value of Rs. 87,181. The quality of the fibre produced was good.

26. The exports of kapok amounted to 6,045 cwt. of a value of Rs. 411,953, as against 3,966 cwt. of a value of Rs. 214,963 during the previous year.

27. Cotton cultivation continued to be assisted by Government and a total crop of 3,000 cwt. of seed cotton was produced during the year. Of this 2,604 cwt. were grown in the Hambantota District. All this cotton was purchased by the Spinning and Weaving Mills at Colombo and only 20 cwt. were exported during the year. The small holders in the Hambantota District are taking

a keen interest in this crop. Mr. Hilson, Cotton Specialist to the Government of Madras visited the cotton-growing areas and advised generally on the lines of development which should be followed. Separate rotation stations have been commenced in the cotton growing areas as the result of his visit.

Papain.

28. The exports of papain amounted to 73,624 lb. of a value of Rs. 621,384. Prices for a high-grade papain ruled high during the year and increasing interest is being taken in this product.

Arecanuts.

29. The exports of arecanuts during the year amounted to 165,475 cwt. as against 154,291 cwt. in the previous year. One fairly large acreage was opened under this product in the Southern Province during the year.

Tobacco.

30. The exports of White Burley tobacco from the Jaffna District under the Department of Agriculture purchase scheme amounted to 18,826 lb. and realized prices ranging from 1*s.* 5½*d.* to 2*s.* per lb. on the London market. The prices realized averaged about 1*d.* per lb. in excess of those realized during the previous year and the market reports continue to be encouraging. The burning qualities of the tobacco continue however to be reported upon as being poor. This is obviously due to excess of chlorine in the leaf.

SECTION II.

WORK OF THE DEPARTMENT OF AGRICULTURE.

1. Full details of the work performed by the various divisions of the Department are given in Annexures I.–XI. attached to this report.

SOIL EROSION.

2. Continued attention has been given during the year to the question of soil erosion. Visits have been made by several officers to estates which have undertaken definite lines of work in this connection. Special interest has been taken in the contour terrace system and in the use of creeping cover crops. In certain cases on very steep slopes terracing has not been very satisfactory owing to wash-aways, but generally this system can be used and, combined with the use of cover crops, prevents a very considerable amount of soil erosion. The planting of contour hedges on steep slopes is also to be recommended. In tea estates these could be hedges of closely planted tea, but in other situations certain shrubby forms of leguminous plants can be utilized advantageously. The use of silt pits in connexion with drainage has become much more common and is to be recommended. Many new clearings in rubber have been planted out on the contour, but this practice has not yet been adopted by tea estates. There are difficulties in the way of the adoption of contour planting in tea on account of plucking and manuring, but these difficulties must be overcome and the planting of tea rows straight up and down the hill sides should be discontinued. If this is not practicable on account of labour difficulties in connection with plucking and manuring then definite contour hedges of closely planted tea should be established across the faces of the hill slopes. In the 1925 report, reference was made to the soil erosion experiment plots laid out in the hillside tea. In 1926 a second set of 6 plots on lines similar to those established the previous year, and initial records commenced from August 1. The figures from area A during 1926 showed that the waste from the 6 plots had been equivalent to a loss of 22 tons of dry soil per acre, or equivalent to ·16 inches of soil. Initial records will be continued until May 31, 1927, when the steps for the prevention of soil erosion which it has been decided to test will be given effect to. These experiments are being watched with interest by the planting community, and it is possible that they will be duplicated on a much more extended scale when the Tea Research Institute obtains the estate it is negotiating for. The demand for seed and cuttings of green manure and cover crops has been considerable throughout the year. The Experiment Station, Peradeniya, has supplied cuttings and seeds to the value of Rs. 3,053·21 as against Rs. 2,433·47 worth the previous year, whilst the supplies from the Central Seed Store of green manures and cover crops amounted to 7,161 lb. as against 6,954 lb. in 1925. The continued demand clearly indicates that serious efforts are being made to check soil erosion and to renovate washed-out soils. *Indigofera endecaphylla* has been found to be the most satisfactory cover crop so far tried at the Peradeniya Experiment Station and is being recommended for the tea-growing area. *Centrosema pubescens* succeeds well in young clearings of rubber and has done well also at Peradeniya, whilst *Vigna oligosperma* is undoubtedly the cover crop in Ceylon for old rubber. It thrives well in the shade of old rubber especially in the low-country. Difficulties have been experienced with its establishment at Peradeniya. At Henaratgoda it has done excellently and has made a complete ground cover in a very short time. It is sometimes difficult to establish at the beginning. The Department recommends estates which secure cover crops for the first time to establish nurseries from either seed or cuttings. These can receive more systematic attention than sowings or plantings direct in the field, especially in regard to watering. In places where *Vigna* has been somewhat difficult to establish manuring of the holes in which cuttings are to be planted out has given very good results, whilst the establishment of nurseries composed of broken pieces of coconut husks has enabled rooted cuttings to be transferred to the fields readily and successfully.

3. Attention is now being given to the testing of indigenous leguminous plants which may be of value as cover crops and the Experiment Station, Peradeniya, has conducted a series of experiments with the germination of green manure seeds from which it has been established that soaking in hot water hastens germination.

Pure-line Seed Paddy.

4. This important work of the Department for the paddy industry of the Colony made further advance during the year. At the end of the year work was being conducted on the following paddy experiment stations :—

Peradeniya	Nalande	Bandaragama
Anuradhapura	Kotmale	Batugedara
Uliyankulam	Iluppadichchenai	Godakawela
Paranthan	Sengapaddai	Dedigama
Kurunegala	Kanniyai	Battapola
Madampe	Badulla	Borala
Katugastota	Belunmahara	Akmimina

5. The Economic Botanist standardized the technique which should be employed in testing various types of pure-line paddies and these methods have been adopted on all stations. At the stations themselves over 2,000 individual plots have been laid down for preliminary tests and 400 field tests. Multiplication plots of paddies proved to be suited to the various districts have been established and 1,000 plots have been put down at the Peradeniya and Anuradhapura stations. These successful tests have shown that yields of 10–22 per cent. are obtainable from the pure-line strains of paddy which have been obtained by the Department. Several of them have shown their suitability for several districts, *e.g.*, B 11 and B 12 in the Katugastota area of the Central Province, and A 8 for dry land conditions in certain parts of the North-Western and Western Provinces, G 1 in many parts of the North-Western Province, and R 11 at Ratnapura. The necessity for testing and even of isolation of pure-line paddies in the districts has again been emphasized during the year. Paddies suited to one district will not give similar performances when transferred to others, and the, aim of the Department is to secure a limited number of strains suitable to the several districts. It aims at having available in tracts cultivating during the maha season one long and one medium-aged paddy for such a season and similarly two types for the yala season. This work of improvement of paddy cultivation has long been recognized by the Department and the results which are now being secured are the outcome of six years' steady work of selection, isolation, and testing. The supplies of improved seed which will be available for paddy growers will increase rapidly now that the initial stages have been passed, but there are yet a number of difficulties ahead which will require solution. Paddies in the hands of growers rapidly become mixed. Steps will have to be taken to maintain pure supplies of seed. Arrangements will have to be made for their multiplication on private seed farms, storage will have to be provided for and the issue to growers carefully organized. At the same time continued selection will have to be carried on with a view to maintaining the standard and if possible of improving upon it. There is no doubt, however, that the Department can materially assist paddy growers by means of a properly organized pure and selected seed supply, and it is gratifying to record that this work is now being closely followed by those interested in agricultural development and by the paddy growers themselves. At those centres where pure-line paddies have been available from the various stations, there was a keen demand for the seed and 438 bushels were reported by Divisional Agricultural Officers and Agricultural Instructors as having been sown by paddy growers during the year. Careful records of the yields obtained by these growers have been kept and the performances of the paddies in the growers' hands are being recorded. The Southern Province still continues to present a number of difficulties which are not met with elsewhere, and it is possible that improvements will only be effected when the number of selections which have recently been made *in situ* at the various stations in the Southern Province have been further developed. As this paddy work develops it is proposed to erect or secure at each station godowns for the storage of seed paddy and to use the station as centres from which to distribute manures and implements. Full details of the work carried out by the Economic Botanist on the paddy areas of the Peradeniya and Anuradhapura stations will be found in Annexure V.

Rotation of Crops on Lands in the Dry Zone.

6. In last year's report it was recorded that definite proposals had been drawn up for testing the rotation of crops suitable for cultivation in the drier parts of the Island. Sanction was secured for the establishment of these stations at Middeniya and Bata-ata in the Hambantota District, at Vavuniya in the Mullaitivu District, at Anamaduwa in the North-Western Province, and at Dambulla in the Central Province. These stations will each be 25 acres in extent and will be worked on a model small holding for dry land crops. Cotton will be used as a money crop and will be rotated with various food crops. Subsequent investigations showed that Maho was a more suitable site than Anamaduwa in the North-Western Province and it was decided to open the station at Maho. The two stations in the Hambantota District and the one at Vavuniya were commenced during the year and were sown with crops for the north-east monsoon. Cotton crops were quite satisfactory on all stations and good crops of maize, sorghum, kurakkan, and other grains were growing at the end of the year. Rotation crops were also grown on the Cotton Experiment Station at Ambalantota, and excellent crops of tomatos, kurakkan, adlay, cow-peas, and kollu (horse gram) were grown on land which had been continuously cropped with cotton for five seasons. It is expected that these experiments will provide information which will be of value towards the replacement of chena cultivation in the dry areas by a more permanent system of agriculture, and the laying out of stations on the lines of model holdings will make it possible to secure data regarding the areas required for an economic holding under dry conditions in Ceylon and the capital requirements for satisfactory equipment.

Work of Experiment Stations.

7. Reference has already been made to the work in connection with soil erosion on the Peradeniya Experiment Station. Tapping and manuring experiments with rubber have also been continued at this station as well as the manuring of tea. Considerable interest is being evinced in the experiments which are being made to test the effect of growing a cover crop of *Indigofera endecaphylla* in tea.

Records up to the end of the year indicate that there has been no dimunition in yields and further data are being awaited with interest by the tea industry. Trials with various fodder grasses have also been continued and the results secured to date have been as follows :—

Guinea grass, variety A—30·4 tons per acre (average of 5 years' trials).
Guinea grass, variety B—26·1 tons per acre (average of 5 years' trials).
Upright Paspalum 21·1 tons per acre (average of 5 years' trials).
Napier grass 19·6 tons per acre (average of 2 years' trials).
Prostrate Paspalum 18·7 tons per acre (average of 4 years' trials).

8. Experiments with Buffalo grass (*Setaria sulcata*), *Paspalum Commersonii* and Efwatakala grass (*Melinis minutiflora*) have been continued and two new grasses, viz., Merker's grass (*Pennisetum merkerii*) and Guatemala grass (*Tripsacum laxum*) introduced. The last named appears to be promising for Peradeniya conditions and is being multiplied. Experiments have also been continued with robusta types of coffee and satisfactory crops secured. Fermentation tests with cacao have been completed and the results prepared for publication in Bulletin form.

9. At the Anuradhapura Experiment Station the extraction of sisal was continued and 12 tons 13 cwt. were prepared by the single scrutching machine and sold locally. Work could not be continued throughout the year owing to the extreme shortage of labour and to paddy work being always given priority as far as labour was concerned. The fibre was of good quality and fetched satisfactory prices in Colombo. The full details of sisal cultivation have been prepared for publication in Bulletin form and there appear to be quite good prospects before its cultivation in many of the dry regions of the Colony. Sisal is also growing well at Ambalantota in the Hambantota District and in certain places in the North-Western Province. The yields of limes on the Anuradhapura Experiment Station are now falling off and a number of trees are dying out. In these cases the young rootlets are affected with *Rhizoctonia bataticola* and it is possible that under the conditions prevailing in the North-Central Province, limes have a certain limit of life and then become prone to attack from this fungus. Several young plants have been planted in areas from which dead and dying plants have been removed and are thriving up to the present. Various trials are being made to ascertain if the condition of the lime plantation can be improved. The experiments with oil palms are being continued but little interest is being taken in this crop in Ceylon. Demands for seeds however have recently been received from India.

10. At the Jaffna Experiment Station the experimental work with White Burley tobacco has been continued. The experiments with the growing of tobacco without irrigation were most promising and will be continued, as it is possible that a useful line of development may result from these experiments. Twenty-nine oz. and 40,000 seedlings of White Burley tobacco were supplied to growers during the season and a total crop of 18,826 lb. was harvested and exported to Europe, as against 14,131 lb. in the previous year. The prices in Europe ranged from 1*s.* 5½*d.* to 2*s.* per lb. and were on the average 1*d.* per lb. in excess of last year. This is encouraging as the manufature was entrusted this season to the growers themselves under the supervision of officers of the Department.

11. A good crop of sugar-cane was also raised on this station during the year and was crushed and made into jaggery. These experiments have stimulated inquiries in regard to jaggery manufacturies in the Jaffna peninsula, and the Department has been asked to advise on and secure two jaggery-making plants for other parts of the peninsula. Good progress has also been made with the selection of chillies, kurakkan, and other grains. Several of the selected chillies have given high yields and seed from them has been in demand. A total of 20,650 chilli seedlings and 1,543 lb. of dried chillies for seed purposes were supplied from the station during the year. Further work was begun during the year in chilli selection and measures taken to prevent cross fertilization of selected types.

12. The cultivation and manuring experiments at the Chilaw coconut trial land were continued during the year and reports placed before the Estates Products Committee of the Board of Agriculture. Whilst these experiments have not been designed in a form now recognized by scientific workers as essential for results capable of statistical treatment, the following generalizations can be drawn from the results secured up to date :—

(1) Ploughing results in increased yields during the two years following such treatment but these increased yields are not maintained. Continuous ploughing and harrowing without manuring tends to a gradual reduction in output.
(2) The beneficial results of manuring are clearly indicated, the average yields for manured plots being 43 per cent. in excess of the non-manured plots.
(3) Plots 3, 4, and 6 manured with fish, steamed bonemeal and sulphate of ammonia respectively have given the steadiest yields throughout and have been less influenced by climatic conditions. The greatest improvement in yields has however, been shown by the plots receiving a complete mixture.
(4) The general tendency of the yields of the plot receiving potash is upwards, but considerable fluctuations occur on account of climatic conditions.
(5) The mineral mixture plot has shown the greatest tendency to improvement, but fluctuations on account of climatic conditions have been considerable.

13. The co-operative trials with coconuts carried out by Gate Mudaliyar A. E. Rajapakse and Mr. J. E. P. Rajapakse were continued, and their results also communicated to the Estates Products Committee of the Board of Agriculture.

COTTON.

14. The cotton crop in the Hambantota District was very promising at the beginning of the year, but yields did not come up to expectations owing to a considerable amount of boll and flower-bud shedding. The average yield of peasant grown cotton was estimated to be 2¾ cwt. of seed cotton per acre, but yields on 5, 6, and 7 cwt. of seed cotton per acre were not uncommon from well cultivated areas. The highest yield of seed cotton recorded during the year was at Embilipitiya in the Province of Sabaragamuwa, where an yield of 902 lb. of seed cotton was secured. The total crop

of cotton grown in various districts of the Island is estimated at 3,000 cwt., of which 2,604 cwt. were produced by the Hambantota District. The increase in this district is shown in the following table :—

Season.	Seed Cotton. Cwt.	Season.	Seed Cotton. Cwt.
1922–23 ..	.. 15½	1924–25 ..	.. 1,225
1923–24 ..	.. 710	1925–26 ..	.. 2,700

15. There is a keen interest in the crop by the peasant growers and they greatly appreciate the money which is paid directly into their hands for the crop. The crop was again purchased by the Divisional Agricultural Officer, Southern, on behalf of the Ceylon Spinning and Weaving Mills, and the expansion of the industry is largely due to the efforts of Mr. Harbord and his staff in the Hambantota District and to the support of Mr. S. P. Wijetunge, Mudaliyar of East Giruwa pattu. The financial aspects of the Peasant Scheme since its inception is shown by the following statements :—

Cotton Purchase Scheme—Hambantota.

Profit and Loss Account.

1923–24—	Rs. c.
Payments to cultivators	11,957 41
Cost of seed, freight, cart hire, &c.	5,495 17
	17,452 58
Proceeds of sale of cotton	18,202 81
Profit	750 23
Total crop of seed cotton	710 cwt.
1924–25—	Rs. c.
Payments to cultivators	23,815 58
Cost of seed, freight, cart hire, travelling, &c. ..	6,027 44
	29,843 2
Proceeds of sale of cotton and seed	30,733 40
Profit	890 38
Total crop of seed cotton	1,225 cwt.
1925–26—	Rs. c.
Payments to cultivators	45,513 59
Cost of seed, freight, cart hire, travelling, &c. ..	11,278 30
	56,791 89
Proceeds of sale of cotton	55,225 42
Deficit	1,566 47
Total crop of seed cotton	2,700 cwt.

16. The payment of these amounts of money to the peasants of the district is having its effect, and it is interesting to note how the petty traders with piece goods, mirrors, cooking utensils, &c., frequent the purchase centres at the time of purchase and the fancies that the different growers show towards these goods. Mirrors seem to have stood first in the order of favouritism during the past year.

17. Efforts were being made during the year to consolidate these cotton holdings with a view to effecting a consolidated and improved method of cultivation. This has been possible in several villages and the headmen of those villages are to be complimented upon their work in this connection. Some lands are being grown for the second and even the third time in cotton and it is becoming recognized that land will grow more than one crop particularly if weed growth is kept down. In two centres there are desires expressed by some cultivators to become the owners of lands which they have regularly cultivated, and it would be a great encouragement to them and to others if they could be so dealt with and if they could be provided with sufficient capital to purchase the bulls and implements necessary for its proper continuous cultivation.

18. Cotton was grown during the year in Walapane, in Uva, the Matale District of the Central Province, and in the North-Western Province, in addition to the places already mentioned previously.

Sugar.

19. Sugar-cane experiments were continued at Bibile and a fair quantity of jaggery was produced. This found a ready sale in the locality at fairly reasonable prices. Better quality jaggery was however produced at the Jaffna Experiment Station and the financial aspects of this experiment were as follows :—

	Rs. c.
(1) Cost of labour for cutting canes, feeding the mill, &c. (45 hours) ..	3 75
(2) Extracting 9,160 lb. of juice (hire of bulls for 45 hours) ..	7 50
(3) Cost of lime	0 90
(4) Cost of fuel	11 70
(5) Cost of labour and supervision of the work in the furnace ..	15 75
Cost of manufacture of 1 lb. jaggery	0 4·7
Out-turn of sugar 980 lb. from 7/16 acre at 18 cents per lb. ..	76 40

20. Five acres of land were planted up with sugar-cane at Allai and despite some difficulties with floods and with termites, the crop has made excellent growth and will yield not less than 30 tons of canes per acre from the virgin canes when they reach maturity. Irrigation was done from the river in the dry season by means of a well sweep but it was subsequently decided to erect a Persian wheel. This work has been undertaken by Mr. A. Thillyampalam of Velvettiturai and being on the side of the main road between Trincomalee and Batticaloa has attracted considerable attention from the number of motor bus passengers who now pass along this route, and it is hoped that it may lead to similar wheels being erected along the banks of the Mahaweli-ganga in connection with the tobacco cultivations which there take place.

PINEAPPLES.

21. Experimental data regarding the yields of pineapples in various parts of the Island were secured during the year. They were as follows :—

Expenditure.	Per Acre.
	Rs. c.
Peradeniya—	
Purchase of suckers	463 20
Cost of cultivation	239 12
	702 32
Receipts	1,415 88
Profits	713 56
Anuradhapura—	
Profits per acre, first experiment	609 25
Profits per acre, second experiment	495 0
Batapola—	
Expenditure	405 62
Receipts	1,379 50
Profits	973 88

These results indicate that the cultivation of pineapples in Ceylon is a profitable undertaking. The local demand for fresh fruits at present greatly exceeds the supply, and there should be considerable possibilities before the growing of this crop for the supply of fruit to the shipping in the harbour. It is also possible that the growing of pineapples for a canning industry would be worthy of development.

	Rs. c.	Rs. c.
1924–1925	237 77 ..	475 54
1925–1926	368 19 ..	736 38
1926	83 79 ..	167 58
	689 75	1,379 50
Expenditure	202 81 ..	405 62
Profit	486 94	973 88

22. Kew pines of fair size have been grown at the Jaffna Experiment Station, but it has been shown at this station that yields cannot be expected to be good unless the plants are lightly shaded. *Gliricidia maculata* has been used at this station as also at Anuradhapura. Under tropical conditions pineapples appear to give higher yields under a light shade than when grown in full sun, although it seems possible that the fruits are not quite of such a fine flavour.

GRAPE FRUIT.

23. The efforts of the Department to encourage the cultivation of grape fruit are becoming recognized. A total of 1,060 seedlings were distributed during the year and the demand was greater than the supply. At Peradeniya and at Anuradhapura the Department now has fruiting trees which have been tested and there are a limited number which are of satisfactory quality. It was decided during the year to utilize these trees for the supply of budwood to be budded on to pomelo stocks, and at the time this decision was taken it was decided to lay down adequate nurseries of citrus and other fruit trees for budding purposes, and to stop the issue wherever possible of further supply of seedlings.

PADDY.

24. In addition to the pure-line seed work which has been reported upon earlier, the manurial experiments and demonstrations have been continued. These are beginning to show good results in the North-Western Province, and in this Province there are certain areas when weeding has become common after its beneficial effects on crop yields were demonstrated in demonstration plots. Green manuring has been experimented with at several new centres and sunn-hemp has been shown to be a useful green manure for certain areas in the Central Province and in Mannar. Bonemeal is still the most favoured manure for paddy and it has been found that the steamed product gives better results than the ordinary crushed bones. The possibilities of applications of nitrogenous manures have not been adequately tested, but work in this connection is contemplated as soon as further paddy lands at Peradeniya are available. The pests and diseases of paddy have received attention during the year, but further work has yet to be done. An investigation of the infestation of stored

paddy by the paddy moth was begun, particularly in relation to the question of the storage of seed paddies. Ploughing demonstrations were also given in certain centres. I desire to place on record my thanks to the following gentlemen :—

(1) The Maniagar, Karachchi,	(4) Mr. S. Sabapathipillai.
(2) Mr. D. C. Anketel,	(5) Mr. V. Muttukumaru,
(3) Mr. S. Saravanamuttu,	(6) Mr. J. M. T. Cooke,

members of the Unofficial Advisory Committee for the Paranthan Seed Farm for their assistance in the early stages of the development of this station.

Implements.

25. Further investigations of implements particularly those suitable for paddy cultivation were made during the year. Introduction of Ransome's Victory plough was made and various tests carried out. This plough does excellent work on dry lands, and in paddy fields particularly if they are somewhat light in character. It is eminently suited for work on coconut estates and should receive a thorough trial. Messrs. the Colombo Stores have consented to take up the agency for this plough and to stock spare parts. Its share has been found to wear rather quickly, but the makers, Messrs. Ransome Sims & Jeffries, have been asked to supply shares of chilled steel if possible. In paddy fields some excellent work was also done by this plough particularly if the land was not heavy. It can be worked with country buffaloes, but is somewhat too heavy for the village cattle except on very light lands.

26. Another implement which has been tested during the year is the Burmese harrow introduced by the Economic Botanist. At certain centres good work has been secured with economy of time and labour with this implement, but other stations report that they have not been able to secure as equally good results. Further tests will have to be made before any definite expression of opinion can be pronounced. It has also been decided to secure patterns of the paddy implements used in Java and in Japan in order to see if anything further can be learned from them. Better implements are needed in Ceylon—especially ploughs—but these implements can only be secured by gradual evolution after careful tests have been made. It has been decided to make dynamometer tests of the draughts of different forms of ploughs in different soils during the next year.

Prize-holding Competitions.

27. The number of entries for these competitions continues to increase and the competition spirit is being maintained. There is little doubt that these competitions do stimulate interest and result in improvements. They also bring the agricultural officers into close touch with the cultivators and with the work that they are doing.

28. The following is a list of the competitions which were held during the year. The total number of such competitions amounted to 76 :—

Paddy cultivation competitions.	Cotton cultivation competitions.
Vegetable garden competitions.	Tobacco cultivation competitions.
Tea garden competitions.	Police garden competitions.
Cacao garden competitions.	School garden competitions.

29. The thanks of the Department are due to Lieut.-Colonel T. Y. Wright ; the Hon. Mr. Justice G. S. Schneider ; Mudaliyar J. P. Obeyesekere ; The Ceylon Spinning and Weaving Mills ; Dr. C. Brito-Babapulle ; Mudaliyar W. Daniel Fernando Waidyasekera ; Messrs. W. R. Hancock, Chas. Chitty; Austin Ekanayake; Mudaliyar, Wellaboda pattu; Mudaliyar, Gangaboda pattu ; Mr. D. Samaraweera; and Mr. E. J. Buultjens, for their generous donations of prizes for several of the above-mentioned competitions.

Agricultural Shows.

30. Agricultural Shows were held during the year at the following centres :—Nuwara Eliya, Bandarawela, Kotmale, Mannar, Trincomalee, Wewagam pattu, and Eravur korale in Eastern Province, Pugoda (Colombo District), Vadamaradchi (Northern Province), and Sangilipalama.

31. The Kandy Show was a large one and was held during the Perahera week. Its organization was most highly commended, and was the result of a considerable expenditure of time and energy by the Joint Honorary Secretaries, Mr. F. Burnett, Divisional Agricultural Officer, Central Division, and Mr. E. H. Davies, Office Assistant of the Kandy Kachcheri.

32. At most of these Shows the Department sent exhibits of general interest and arranged that officers should give lectures on agricultural subjects.

Pests and Diseases.

33. The outstanding feature of the work of the year has been the recognition over a very wide range of hosts of *Rhizoctonia bataticola* in cases of root disease. It has been found by the Mycologist (Dr. Small) in the young rootlets of plants affected with root disease, and has been found alone as well as in association with other fungi commonly reputed to be the causes of a number of root diseases of cultivated crops in Ceylon and other tropical countries. Investigations have shown that *Rhizoctonia bataticola*, in certain cases, precedes the presence of other fungi such as *Fomes lignosus*, *Fomes lamaoensis*, *Poria*, *Diplodia*, *Xylaria*, &c. In fact Dr. Small has gradually come to the conclusion that *Rhizoctonia bataticola* may be the initial cause of most root diseases in the Island, and the view-point of the Department in respect to root diseases has, in consequence, undergone a considerable change during the year. In some other countries *Rhizoctonia bataticola* has affected principally introduced plants and but rarely the indigenous flora. If this is eventually found to be the case in Ceylon and the parasitism of *Rhizoctonia* established beyond doubt by experimental inoculations certain changes in our agricultural methods in regard to permanent products will have to be considered. Much further investigational work is however necessary and several lines of research have been started. Root disease of coconuts has also received some attention and will be given detailed investigation upon the return of the Assistant Mycologist from leave.

34. The tea termite problem has been closely investigated by the Assistant Entomologist and he is convinced that greater attention must be given to the prevention, treatment, and cure of wounds. Wood rot of tea is common and it is felt that in termite-infested areas greater attention must be given to this aspect of the problem and investigations on the healing of wounds have been begun. The life-history of the tea tortrix has been carefully investigated during the year and further work on this pest has been handed over to the Tea Research Institute. A survey of the green bug and brown bug situation in the Haputale district was made during the early part of the year and recommendations made. The parasites of the coconut caterpillar in the North-Western Province have been investigated in co-operation with the Plant Pest Inspector of that division, and attempts have been made to transfer some to the Eastern Province. The introduction of *Dactylopius tomentosus* for the destruction of the prickly pear *Opuntia dillenii* has been most successful, an area of fully 65 acres at Trincomalee having been cleared and distribution is now being made to Mannar, Jaffna, and Delft. The bean fly (*Agromyza*) has been investigated during the year and the immunity of various types of beans to its attack studied. One type has been found to be practically immune. Preliminary investigations have been made of the pests of stored paddy and preliminary tests made with several standard insecticides against a number of the common pests of our economic crops.

35. Plans for a new fumigatorium at Colombo were worked out during the year and the necessary funds voted by the Legislative Council. Citrus fruit imports continued to increase. 184 consignments consisting of 3,273 packages were imported during the year. Of these, 86 consignments comprising 2,699 packages had to be fumigated. It was found that Australian and Californian fruit was clean and free from pests, but imports from Sicily and Palestine were badly covered with certain scale insects and had to be dealt with. The Governments of Italy and Palestine were approached in connection with the unsatisfactory condition of their exports of Citrus fruit sent to Ceylon, and it is hoped that steps will be taken to effect an improvement. Eight consignments consisting of 19 packages and 8 samples of tea seed were examined during the year for certificate of export.

36. Plant Pest Inspectors continued their educational campaigns and a number of lectures in the vernaculars were given in the villages. Lantern lectures on pests of coconuts, paddy, &c., were given and were well attended and appreciated. An extension of these lantern lectures has been planned, and it is intended to equip each division with a lantern and to increase the number of slides. Two illustrated posters of coconut diseases were completed ready for issue during the year and two others were in the press. Bunchy top disease of plantains is reported to be on the decrease by all Plant Pest Inspectors, and it is possible that in Ceylon it may be brought about by aphids as in Australia, by nematodes as in the Philippines, and by *Rhizoctonia bataticola*. Further investigations to ascertain which is the most important cause of the disease under Ceylon conditions have to be carried out and the results of the small experimental plot at Rambukkana are of interest. Water Hyacinth has been seriously tackled in the Southern Province. In 1922 attention was drawn to the increase of this pest but little effort was made to effect an improvement. It was, therefore, decided that the Department should start an organized campaign. Work started in earnest in July and has been carried out with great credit to the Plant Pest Inspector, Southern, and his staff. The Ambalantota and the Walasmulla-Weraketiya infestations at Bentota, Matara, Weligama, and Kalutara in the Southern Division, and at Negombo, Minuwangoda, Chilaw, Madampe, Hettipola, and Wariyapola in the North-Western Division, and in the Kandy District and the Kegalla District of the Central Division. In the North-Western Division the tapering of coconuts and the coconut caterpillar have received attention, and in the Central Division the betel disease in the Kegalla District has been dealt with and the outbreak of spotted locust is being carefully watched.

CHEMICAL INVESTIGATIONS.

37. The Agricultural Chemist was appointed during the year as Chief Analyst under the Fertilizers' Ordinance of 1901, and has had to undertake analyses of manures as arbitrator. Work on the decomposition of green manures has been continued, and it was found that maximum nitrification took place between the sixth and eighth week and continues for five to six months. Further trials have been outlined and have been begun. The study of the nitrification of organic manures has also been continued and the results so far obtained placed before the agricultural community. A further series of leaching experiments were also begun through the generous assistance of the Chilean Nitrate Committee in order to check the results of the first experiments which were carried out in 1925. Certain investigations of citronella oils in connection with trials to ascertain whether grasses of high-yielding oil contents can be selected out and analyses of Ceylon cultivated fodder grasses were made as part of a piece of investigation being carried out in co-operation with the Veterinary Department. It has been found that Ceylon grasses, except from Jaffna, are deficient in phosphoric acid and to a lesser extent in lime. It is possible that these deficiencies have considerable influences on the nutrition size and general health of the Island cattle.

AGRICULTURAL EDUCATION.

38. In addition to lectures in the vernaculars in villages in regard to the control of pests and diseases, lectures have been delivered in the vernaculars in all districts by agricultural officers touching upon various problems which are receiving the attention of the Department, but have been mainly directed towards the encouragement of better cultivation—methods of paddy and of the greater cultivation of foodstuffs and currystuffs which can be readily grown in the Colony, but which are now largely imported. Lectures in English and in the vernaculars have been given on the cultivation of foodstuffs and currystuffs at the Farm Schools at Peradeniya and Jaffna, and these lectures, which were designed mainly for the guidance of agricultural officers and for the instruction of the students at these schools, were thrown open to the public.

39. The number of students at the Farm School, Peradeniya, at the end of the year was 16, of whom 3 were second-year and 13 first-year students in the English course and there were 12 teachers from Government vernacular schools receiving special instruction so as to enable them to impart that instruction to the pupils of village schools on their return. The work of the students was, on the whole, satisfactory, and useful progress has been made with the instructional dairy which has been established in conjunction with this school. During 1926 the Farm School at Jaffna had 12 students undergoing a course. A vacation class for teachers in elementary schools was held at Peradeniya Farm School during September and accommodation was provided for 30 teachers. This class was greatly appreciated and will be continued.

40. Definite arrangements have been made for the teachers to go through the whole course prescribed in the Code for the elementary vernacular schools. Every effort is being made to impress on teachers the value of the extension of school garden work and to encourage agricultural education, but there are still some teachers who do not realize its importance. This may be due to some extent to indifference on the part of teachers, but often there are difficulties in their way in the matter of fencing, water supply, &c.

41. The number of registered school gardens attached to Government schools was as follows at the end of the year :—

Central Division	..	163	Colombo District	..	71
Southern Division	..	165	Ratnapura District	..	54
Northern Division	..	77	Badulla District	..	33
North-Western Division	..	98	Batticaloa District	..	28

42. Additional gardens attached to Government schools are being registered as rapidly as funds requisite for their equipment with tools and implements permit, and as the number of unregistered school gardens is yearly on the increase, and the question of registering them becomes a difficult problem when funds are not rapidly forthcoming from the Education District Committee concerned for their initial equipment. The Department only maintains the tools and implements required in school gardens after registration. As a large number of school gardens was awaiting registration an additional sum of Rs. 2,500 was earmarked from Government funds to permit of the tools and implements to new school gardens during the financial year 1925–26. Thirty such school gardens were equipped as was also the case during the previous financial year.

43. Fencing of school gardens is still defective and inadequate and until such is remedied school gardens must necessarily suffer from damage by cattle. Water supplies to school gardens is another matter which must receive the close attention of the Education District Committees concerned.

44. Registered school gardens in all the divisions, where necessary, were supplied with fresh stocks during the year to replace wear and tear. The total expenditure on implements during the financial year 1925–26 amounted to Rs. 7,271·31 and seeds and plants to the value of Rs. 2,838·09. were also supplied.

45. During the financial year 1925–26 a sum of Rs. 4,163 was spent on awards to school and home gardens for satisfactory work, and 892 certificates were issued to teachers and pupils.

46. School garden work has improved in most of the districts, the work of the Colombo and Ratnapura Districts being particularly good. The work in the North-Western Division continues to improve year by year as a result of the competition for the prize offered by Lieut.-Colonel T. Y. Wright. School garden work in the Chilaw-Puttalam District continues to improve and great keenness is shown as a result of the Challenge Cup offered by the Hon. Mr. G. S. Schneider since 1923. The Southern Division continues to maintain the standard of efficiency reached during the previous years, particularly in the Kalutara District where the school garden work continues to improve mainly as the result of the annual prize offered by Mudaliyar W. Daniel Fernando Waidyasekera of Panadure. Some progress has been made in the Kandy and Kegalla District also, while the same cannot yet be said of the work of the Matale and Nuwara Eliya Districts.

47. Every endeavour has been made to effect further improvement in the quality and number of pupils' home gardens, and much progress has been made in this direction in all the divisions. Pupils have been encouraged by the award of prizes and certificates for such gardens and their garden requirements, *e.g.*, seeds and plants, are supplied from their respective school gardens.

Co-operation.

48. A satisfactory increase in the number of societies took place during the year. Forty new societies were registered whilst the registration of 10 was cancelled. The total number of societies at the end of the year was 329. There was a total of 37,425 members and their paid-up share capital amounted to Rs. 423,613·88 and their deposits to Rs. 60,125·20. The amount standing to the credit of reserve funds of all societies was Rs. 73,183·39 at the end of the co-operatve year, April 30, 1926. Financial loans from Government funds amounting to Rs. 52,000 were granted during the year making a total of Rs. 142,715·12 outstanding. The supervising and directing staff has been strengthened and classes for the training of office-bearers of societies were held at four centres during the year. Recoveries of loans are in some cases slow, but in certain districts improvements have been effected. In others, liquidation will be necessary.

Seed Distribution.

49. The demands for seeds again increased and the sales amounted to Rs. 17,041·58. Free distribution of a value of Rs. 4,422·51 was made.

Publications.

50. The following publications were issued during the year :—

The " Tropical Agriculturist," Vols. LXVI. and LXVII.
The " Govikam Sangarawa," Vol. XX., Parts 7–12, and Vol. XXI., Parts 1–6.
The " Kamat Tholil Velakkam," Vol. XX.

Bulletins of the Department of Agriculture.

No. 74.—House Flies and their Connection with Manuring operations on Estates in Ceylon.
No. 75.—A Preliminary Investigation on the Absorption of Fertilizers by Ceylon Soils.
No. 76.—Supplement No. 1 to Bulletin No. 70.
No. 77.—The Inter-relationship of Yield and the various Vegetative Characters in *Hevea Braziliensis*.
No. 78.—Manures in relation to the Control of Shot-hole Borer of Tea.
No. 79.—The Construction of Smoke-houses for Small Rubber Estates.

Leaflets.

No. 38.—School Gardens.
No. 39.—Bacterial Leaf Spot of Betel.
No. 40.—The Water Hyacinth Pest.
No. 41.—The Grape Fruit.
No. 42.—Recent Trials with Pineapples.

51. The sales of publications realized Rs. 20,227·38 during the year, as against Rs. 18,125·97 during the previous year.

Botanical Investigations.

52. The additions to the Ceylon Herbarium numbered 226 sheets and to the Gardens Herbarium 36. An additional 46 drawings of plants were completed by the draughtsmen. Specimens sent in for identification numbered 801—a number very greatly in excess of previous years. Work has been continued on the material for the supplementary volume to Trimen's Flora upon Ceylon grasses and upon a small handbook for use in schools.

53. Additional improvements have been effected in the Royal Botanic Gardens, Peradeniya The old palm group at the entrance has been removed and replaced by groups of cannas and other flowering plants. This change has been much appreciated and will be seen to greater effect when the plans for a rearrangement and improvement of the entrance gates for which funds have been voted has been given effect to. The further development of the flower garden has been carried out, and the Liana drive borders and those of the main central drive have also been remade and renovated with satisfactory results. Increased attention has also been given to the arboretum and its effects are being seen and considerable improvements have been begun along the frontage of the Gardens.

54. The Hakgala Gardens continue to improve especially around the rockery. The new section of the rockery has been filled with indigenous plants and attracts considerable attention, whilst the bulb garden and the improvements around the Nock Memorial Summer House merit attention. A beginning was made during the year with the testing of the suitability of various fodder plants for growing on patanas in the hope of finding something suitable, if possible, for the improvement of the pasturage on these grass covered hill slopes.

55. Henaratgoda Gardens continue to improve and now reflects great credit on the work of Mr. K. J. Alex. Sylva, its Assistant Curator. A beginning was made during the year with the planting of areas with plants producing Chaulmoogra oils suitable for the treatment of leprosy. A clearing of 1½ acres was prepared and planted with *Taraktogenos Kurzii* and stocks of seed of *Hydnocarpus Wightiana* were secured for planting further areas during the south-west monsoon season of 1927 at Henaratgoda Botanic Gardens and at Peradeniya Experiment Station.

56. The preparation of the Guide Books for the three Gardens and of the necessary photographs for their illustration was completed during the year, and the manuscript sent to the Printer. These guides have been a long-felt want and they should be of considerable assistance to visitors and to those interested in tropical botany. Messrs. Parsons, Nock, and Sylva have given most careful thought and attention to their preparation.

Agricultural Conference.

At Peradeniya.

57. The first Agricultural Conference to be held in Ceylon had its sessions on March 5, 11, and 13, 1926, in the new Board Room of the Department at Peradeniya. The object of the Conference was to enable some of the problems upon which the Department was doing special work to be publicly discussed and for suggestions for further investigations to be brought forward. His Excellency the Governor presided at two of the sessions. The meetings were well attended, and the discussions on the various subjects were keen and informative. Several availed themselves of the opportunity of visiting the Experiment Station and the various laboratories at Peradeniya and of inspecting the work that is being carried on. From many sides the Department was assured of the success of its first Conference, and the officers of the Department have been encouraged by the many expressions of appreciation. The Conference will be held annually, and it is hoped not only to make them increasingly attractive to the public, but to organize Divisional Conferences for the benefit largely of the agricultural population in the Provinces.

The following were the papers read at the Conference :—

Village Agriculture.

(1) The Chena Problem in Ceylon and Suggestions for its Solution, by the Director of Agriculture.

(2) Cotton Cultivation in the Hambantota District and its Place in a Rotation for Dry Zone Agriculture, by Mr. G. Harbord, Divisional Agricultural Officer, Southern Division.

(3) General Progress in the Northern Division, by Mr. W. P. A. Cooke, Divisional Agricultural Officer, Northern Division.

(4) Marketing of Produce, by Mr. N. K. Jardine, Acting Divisional Agricultural Officer, Central Division.

(5) Paddy : The Possibilities of increasing the Yields of Paddy by the use of Pure-line Selected Seed, by Mr. G. V. Wickramasekera, Acting Economic Botanist.

(6) Agricultural Work of a Co-operative Credit Society, by Mr. G. E. J. Hulugalle, Divisional Agricultural Officer, North-Western Division.

(7) Chillies: Improvement of Chillies by Selection, by Mr. N. Senathiraja, Farm Manager, Jaffna Experiment Station.

(8) Some Insect Pests of Food Crops, by Mr. G. D. Austin, Assistant in Entomology.

Estate Products.

(1) Soil Erosion and Cover Crops, by Mr. T. H. Holland, Manager, Experiment Station, Peradeniya.

(2) Some Practical Notes on the Prevention of Soil Erosion upon Estates, by Mr. F. Denham Till and Mr. R. Senanayake.

(3) Cultural Methods in the Control of some Insect Pests, by Dr. J. C. Hutson, Entomologist.

(4) Manuring in Relation to the Control of Shot-hole Borer of Tea, by Mr. F. P. Jepson, Assistant Entomologist.

(5) Branch Canker of Tea, by Mr. C. H. Gadd, Acting Mycologist.

(6) Diseases in Para Rubber Cultivation, by Mr. J. Mitchell.

(7) Some Points in Connection with Rubber Manufacture, by Mr. T. E. H. O'Brien.

(8) General Principles of Plant Selection and their Application to Hevea, by Mr. R. A. Taylor.

(9) Tree Surgery as Applicable to Rubber, by Mr. R. H. Stoughton-Harris.

General Agriculture.

(1) Agricultural Education, by the Director of Agriculture.

(2) The Need for the Improvement of Cattle in Ceylon, by the Hon. Sir H. Marcus Fernando.

(3) Absorption of Fertilizers by Ceylon Soils, by Mr. A. W. R. Joachim, Agricultural Chemist.

(4) Decomposition of Green and Organic Manures under Tropical Conditions, by Mr. A. W. R. Joachim, Agricultural Chemist.

(5) Plant Pests Inspection, by Mr. N. K. Jardine, Plant Pests Inspector, Central.

Head Office.

58. His Excellency the Governor declared the new Headquarters of the Department open on March 5, when he inaugurated the first Agricultural Conference. The building was fully furnished during the year, and every facility has been provided for efficient and expeditious work. The adoption of the office system recommended by the Director of Statistics has been completed, excepting some minor details which will receive attention as the clerical staff becomes skilled in working the new system. It has been found possible to reduce the sanctioned clerical strength by one man, despite a very considerable increase in correspondence. The Head Office work has been divided into the following sections, each under the immediate charge of a Subject Clerk, assisted by one or more juniors, the Chief Clerk exercising general supervision over the entire staff :—

(1) Research Technical Advice Plant Pests ; and Foreign Exchanges.

(2) Divisional Administration, Agricultural Education, Shows, Competitions, &c.

(3) All Staff Questions.

(4) Propaganda—Publications, &c.

(5) The Tropical Agriculturist.

(6) Stores and Supplies.

(7) Financial.

EXPENDITURE.

59. The expenditure of the Department during the financial year 1925–26 was as follows :—

	Rs.	c.
Salaries	372,942	16
Travelling	61,837	63
General : Labour and Upkeep :—		
Peradeniya Gardens	22,659	45
Hakgala Gardens	6,488	91
Henaratgoda Gardens	2,878	34
Nuwara Eliya Gardens	1,818	43
Queen's House Gardens	2,985	61
King's Pavilion Gardens	2,845	9
Queen's Cottage Gardens	5,791	70
Temple Trees Gardens	1,230	82
The Lodge Gardens, Kandy	507	95
The Lodge Gardens, Nuwara Eliya	1,358	54
Experiment Stations :—		
Peradeniya	34,495	57
Jaffna	12,089	74
Anuradhapura	17,815	78
Chilaw Coconut Trial Ground	1,865	87
School and Home Gardens :—		
Labour and Upkeep	12,213	70
Upkeep of Library, &c.	7,788	51
Prevention of Plant Pests and Diseases	2,526	87
Incidental expenses	3,964	43
Agricultural Education :—		
Salaries	11,994	87
Lecturing fees	1,481	50
Incidental expenses	1,902	53
Laboratory expenses	1,567	12
Labour and upkeep	6,285	5
Dieting of students	5,771	47
Dairy establishment	6,573	17
Co-operative Societies :—		
Salaries	8,858	0
Travelling	1,463	8
Incidental expenses	357	58
Seed Store and Publication Depôt :—		
Salaries	5,731	20
Seed distribution	10,509	19
Publications	11,364	40
Incidental expenses	72	21
Special Expenditure :—		
Grants in aid for Agricultural Shows and Competitions	6,807	14
Training of Secretaries for Co-operative Societies	1,169	60
Experiments and demonstrations with paddy manuring and seed selection	26,931	68
Upkeep of additional minor experiment and demonstration plots	15,070	8
Cotton experiments	15,966	5
Maintenance of Davie's Tree, Katugastota	208	73
Sugar-cane experiments	5,392	21
Equipment of Agricultural School, Jaffna	2,971	25
Grant in aid to Imperial Bureau of Entomology	7,500	0
Grant in aid to Imperial Bureau of Mycology	4,500	0
Expenditure in connection with Rubber Research Scheme, grant in aid	67,500	0
Visit of Mr. Hilson for cotton investigations	3,852	24
Equipment of new Chemical Laboratory and administration block	6,659	51
Deputation of an officer to proceed to Europe to study Co-operative Credit Systems and to travelling in Ceylon on his return	5,488	98
Cultivation of Chaulmoogra plant	223	24
	820,277	18

60. This expenditure may be itemized under the following sub-heads :—

	Rs.	c.
Administration	48,566	32
Research : Scientific investigations, including Central Experiment Station	283,380	24
Botanic Gardens, including gardens of Governor's and Colonial Secretary's residences	90,854	21
Agricultural Education, including School of Tropical Agriculture, Farm School, Jaffna, School Gardens, Grants to Shows and Competitions	57,567	80
Divisional Experiments, including experimental cultivation of cotton and Experiment Stations in Jaffna and Anuradhapura, and other experimental plots	296,063	97
Co-operative Societies	16,167	64
Seed Store and Publication Depôt	27,677	0
	820,277	18

RECEIPTS.

61. The following is a statement of receipts for the financial year 1925–26 :—

	Rs.	c.	Rs.	c.
(1) Sale of seeds and publications			37,279	72
(2) Botanic Gardens, Peradeniya			5,855	63
(3) Botanic Gardens, Hakgala			1,325	6
(4) Botanic Gardens, Henaratgoda			2,439	40
(5) Botanic Gardens, Nuwara Eliya			45	70
(6) Experiment Station, Peradeniya			27,543	63
(7) Experiment Station, Balangoda			95	57
(8) Experiment Station, Godakawela			204	48
(9) Northern Agricultural Division :—				
Experiment Station, Anuradhapura	8,493	83		
Experiment Station, Jaffna	2,413	97		
Experiment Station, Mannar	98	75		
Experiment Station, Trincomalee	48	66		
			11,055	21
(10) Central Agricultural Division			10,823	57
(11) Southern Agricultural Division			5,005	44
(12) North-Western Agricultural Division			423	43
(13) Eastern Agricultural Division (Batticaloa)			479	62
(14) Eastern Agricultural Division (Badulla)			381	99
(15) Economic Botanist's Division			438	95
			103.397	40

62. These receipts may be itemized under the following heads and sub-heads :—

	Rs.	c.
Head 3, Fines and Forfeiture	51	86
Head 4, School Fees	7,162	25
Head 4, Sundries	21,085	23
Head 5, Post and Telegraph	1	95
Head 6, Railway	13	15
Head 8, Sale of Old Stores and Cast Animals	27	48
Head 8, Sundries	7	45
Head 9, Miscellaneous Land Revenues	75,048	3
	103,397	40

Press Communiqués.

63. The following *communiqués* were issued to the Press during the year :—

Cotton in Ceylon.
Paddy Cultivation Competitions for Kegalla District.
Tiragandahaya Korale West (Bogamuwa) Co-operative Society Paddy-Growing Competition.
Paddy Cultivation Competition in Bingiriya.
Paddy Cultivation Competition in Dewamedi Hatpattu.
Paddy Cultivation Competition in Hiriyala Hatpattu.
Results of Competitions in the Matara District.
Paddy Cultivation Competition, Uda Dumbara.
Competitions in Mannar District.
Currystuffs Cultivation Competition.
Bingiriya Palata Paddy Cultivation Competition.
Chilaw Vegetable Garden Competition.
Currystuffs Cultivation Competition Yala Season.
Nikaweratiya Paddy Cultivation Competition.
Agricultural Competitions in North-Central Province.
Plantain Garden Competition in Trincomalee.

Board of Agriculture.

64. The following appointments were made to the Board of Agriculture during the year :—

Estates Products Committee.

Mr. L. A. Wright *vice* Mr. E. C. Cave Browne.
Mr. E. Maberly Byrde *vice* Mr. Geo. Brown.
Mr. C. G. Spiller *vice* Mr. S. P. Blackmore.
Mr. D. Whitelaw *vice* Mr. E. W. Keith.
Mr. Allen Coombe *vice* Mr. D. S. Cameron.
Mr. N. D. S. Silva *vice* Mr. A. S. Long Price.
Mr. H. D. Bartlett *vice* Mr. T. J. Wilson.
Mr. J. H. Titterington *vice* Mr. H. Scott.
Mr. W. Coombe *vice* Mr. H. F. Parfitt.

Food Products Committee.

The Hon. Mr. M. M. Subramaniam *vice* Mr. S. Tyagaraja.

65. The following matters were dealt with by the Board of Agriculture and its various Committees during the year :—

Board of Agriculture.

The further extension of the work of the Department of Agriculture.

Estates Products Committee.

Progress Reports of the Experiment Station, Peradeniya.
Rozelle Fibre Results.
Importation of Tea Seed from Java.
Black Bug in Tea.
Desmodium.
The Export of Ceylon Birds.
The Importation of Fruits.
Growth of Nitrogen fixing Bacteria on Coconut Estates.
The Coconut Oil Industry in Java.
Steam Reservations and Soil Erosion.
Rubber Tapping Experiments at Peradeniya
Rubber Manurial Experiments at Peradeniya.
Rubber Budding—the present position.
Tea Tortrix.
Green and Brown Bug on Tea.
Coconut Experiments on Alexandria Estate, Ja-ela.
Occurrence of Coconut Caterpillar in the North-Western Province.
The Fermentation of Ceylon Cacao.
Pests and Diseases—Fumigatorium.
Oidium on Rubber.
Tea Box Woods.

Rubber Flooring.
Root Diseases of Tea and other Plants.
Preliminary Report Tea Termite Investigation.
Results of Coconut Trial Ground, Chilaw.
Report on Manning Coconut Trial Ground.
Calcium cyanamide as an insecticide.
Annatto.
Budding of Rubber
Rubber Tapping Trials at Henaratgoda.
Length of Tapping Cut and Yield of Rubber.
Fodder Grass Trials at Peradeniya.
Rate of Decomposition of Green Manures under Peradeniya Conditions.
Analyses of Green Manures.
The use of Calcium cyanamide against Locusts on Dadaps.
Arrangements made with the Board of Tea Research Institute to prevent overlapping of work.
Control of Prickly Pear by Cochineal Insects.
Cultivation of Grape Fruit in Ceylon.
Rubber Research.

Food Produc's Committee.

Progress Report.
Pure-line Strains of Paddy Experiments.
Improved Conditions of Tenancy for the Cultivators.
Progress made with pure-line strains of Paddy.

YEARBOOK.

66. A further number of the Yearbook, containing details of the main lines of technical work accomplished by the Department during the year 1926, was prepared at the end of the year ready for issue in March, 1927. The contents of the Yearbook are as follows —

Introduction.
Paddy Seed Stations.
Matters of Phytopathological Interest during 1926
Some Notes on Tea Tortrix. (*Homona coffearia* Nietn).
A Preliminary Note on the Distribution of the Ceylon Tea Calotermes.
Notes on some Pests and Diseases of Coconuts in the North-Western Division.
Leaf-break Diseases of Coconuts.
The Growing of Tobacco as a Non-irrigated Crop on the Experiment Station, Jaffna.
Notes on some Pests and Diseases of Plantains and Tobacco in the North-Western Division.
Cotton Cultivation in the Hambantota District.
Indigenous Cover Plants.
The Effect of a Growing Crop of *Indigofera endecaphylla* on Tea.
Laboratory Experiments on the Nitrification of Fertilizers and Manures.
The Water Hyacinth and Eradication Work in the Southern Province during 1926.
A Sclerotial Disease of Groundnuts caused by *Sclerotium rolfsii Sacc.*
A Sclerotial Disease of Maize (*Zea Mays L.*) due to *Rhizoctonia solani* Kühn.
Notes on some Physiological Conditions affecting the Parasitism of *Rhizoctonia Solani* Kühn.
Preliminary Notes on the Toxicity of some Standard Insecticides under Ceylon Conditions.
Two Caterpillar Pests of the Dadap (*Erythrina lithopserma* Bl).
The Mineral Contents of some Cultivated Fodder Grasses in Ceylon.
The Germination of Green Manure Seeds.
Germination Tests with Robusta and Liberian Coffees.
Some Recent and Interesting Plant Introductions to Ceylon.
Vernacular School Gardens in the North-Western Division.

STAFF CHANGES AND DEPARTMENTAL EXAMINATIONS.

67. The following officers passed the Departmental Examination held in January and July and the quarterly vernacular examination during the year :—

Senior Departmental.—Messrs. N. Wickremeratne, W. Molegoda, J. C. Drieberg, and T. Young (Field Branch).

Junior Departmental.—Messrs. S. B. Yatawara, C. P. Crispeyn, J. M. Silva, E. A. Peiris, and R. Siriwardene.

Probationers.—Messrs. D. J. Welaratne, S. S. Sinnathurai, V. A. Dharmadasa, W. P. Karannagoda, J. S. T. de Silva, and Peter de Silva.

Sinhalese.—Messrs. G. Harbord, V. L. de Silva, V. G. Dharmadasa, E. A. Peiris, L. Lord, C. N. E. J. de Mel, S. Sangarapillai, W. P. Karannagoda, J. S. T. de Silva, D. J. Welaratne, and F. A. Sandrasagra.

Tamil.—Messrs. L. Abeysundera, R. N. Sinnayah, G. D. Austin, Walter Perera, S. Kandiah, E. A. Peiris, F. D. Peiris, G. de Silva, P. B. Kapuwatte, J. S. T. de Silva, W. P. Karannagoda, S. Sangarapillai, J. A. Rambukpota, and A. Madanayake.

It is with regret that I have to record the death of Mr. Y. A. J. Perera, a trusted and efficient clerk attached to the Head Office.

Mr. C. H. Gadd, Assistant Mycologist, resigned from Government Service to take up the post of Mycologist, to the Tea Research Scheme.

Mr. M. B. Neangoda, Clerk, Head Office, retired on December owing to illhealth.

Messrs. P. B. Keppitipola, Assistant Foreman, and G. S. Perera, Bookbinder, resigned.

68. The following changes took place during the year :—

Mr. N. K. Jardine, Inspector, Plant Pest (Central), left for England on June 10. Mr. F. Burnett, Divisional Agricultural Officer, Central Division, acting.

Mr. M. Park, Assistant Mycologist, left for England on leave on August 5. His work was attended to by Dr. W. Small, Mycologist, and the two Assistants.

The following appointments took place during the year in the Clerical, Agricultural, Research, and Field Staffs of the Department :—

Clerical.—Messrs. S. Somasunderam and N. Gregory as Clerks, Head Office ; Mr. C. Hulangamuwa as Clerk, Co-operative Societies ; Mr. T. Nadarajah as Clerk to Divisional Agricultural Officer, Central Division.

Bookbinder.—Mr. V. M. Alphonsus.

Agricultural.—Mr. L. Lord, M. A. (Oxon.) was appointed as Divisional Agricultural Officer on February 23. Subsequently he was appointed to the post of Economic Botanist which was vacated by the resignation of Mr. R. O. Iliffe.

Messrs. M. C. Nadarajah, C. B. Kumarasinghe, and R. V. Waidyaratne were appointed to fill the three new posts of Inspectors of Co-operative Societies.

Messrs. D. J. Welaratne, W. P. Karannagoda, V. G. Dharmadasa, M. W. Jayasuriya, V. L. de Silva, Probationers, were appointed as Agricultural Instructors.

Messrs. J. A. Mackelvie, S. P. Fernando, E. V. Ponnuthurai, R. D. Kadramer, and S. H. F. de Silva were appointed as Probationers.

Research.—Dr. W. Small, M.B.E., M.A., B.Sc., Ph.D. (St. And.), F.L.S., was appointed on February 23 to the post of Mycologist in place of Mr. T. Petch who had retired from Government Service.

Mr. J. C. Haigh, B.Sc., was appointed on December 3, Assistant Mycologist, which post had fallen vacant by the retirement of Dr. C. H. Gadd.

Mr. D. G. Panditteseker a, who had qualified in Poona, was appointed as Assistant to Agricultural Chemist.

Field.—Mr. T. B. Dissanayake was appointed as Gardener, Temple Trees, Colombo.

69. The following transfers took place during the year in the Clerical, Agricultural, Research, and Field Staffs of the Department :—

Clerical.—Mr. A. Visvanathan, Deputy Fiscal, Jaffna, as Chief Clerk, Department of Agriculture, *vice* Mr. J. N. Culanthavelu transferred to Jaffna Kachcheri ; Mr. A. Subramaniam of the General Treasury as Clerk to the Mycologist ; Messrs. J. M. Kathirgamer, G. M. Direkze, M. B. Kulugammana, A. E. Ebert to be Clerks, Head Office ; Mr. A. W. de Zoysa as Clerk to Government Analyst ; Mr. K. M. Fernando as Clerk, General Treasury ; Mr. J. A. H. Alagaratnam as Clerk, Board of Immigration and Quarantine ; Mr. G. S. Perera as Bookbinder of this Department.

Agricultural.—Mr. L. Lord to be the Economic Botanist. Mr. W. F. Seneviratne, Agricultural Instructor as Sub-Inspector, Plant Pests (Central), Peradeniya.

Mr. M. R. M. Jebaratnam, Sub-Inspector, Plant Pests, Batticaloa, to Kurunegala.

Mr. C. A. Perera, Vernacular Teacher, Piliandala, as Vernacular Instructor (Agricultural).

Research.—Mr. W. P. D. Pinto, Sub-Inspector, Plant Pests, as Assistant to Entomologist. Mr. Jubert de Zylva, Agricultural Instructor, from Galle to Tangalla.

Field.—Mr. A. D. Arnolis, Gardener, Temple Trees, Colombo, as Gardener, Royal Botanic Gardens, Peradeniya.

Conclusion.

70. In conclusion I would place on record that every branch of the Department has been called upon to perform duties up to the limit of its capacity. The demands from the general public for information and for supplies increased considerably, and I am pleased to record that the interest in the research and investigational work of the Department has also greatly increased. The functions of the Department are becoming better understood and its efforts more appreciated. Every branch of the Department has responded willingly to the increasing work placed upon it and I have received the fullest and most loyal support throughout. At certain times officers have been called upon to work lengthy periods of overtime in order that certain pieces of work might be completed. This extra work all have been performed ungrudgingly, and they have always given of their best to the work they have been called upon to perform. Nor has this extra work been limited to the technical officers, either on the staff or in the subordinate service of the Department, but also to the clerical staff, and I particularly desire to bring to the notice of Government their devotion to duty. All officers of the Department, I am convinced, are giving of their best in their endeavour to serve the agricultural industries of the Colony.

Peradeniya, March 24, 1927.

F. A. STOCKDALE,
Director of Agriculture.

ANNEXURES.

I.—REPORT OF THE MYCOLOGICAL DIVISION.

Visits, &c.—Estates and Experiment Stations have been visited in the following districts :—Peradeniya, Katugastota, Kurunegala, Ratnapura, Kalutara, Galle, Matara, Anuradhapura, Badulla, Gampola, Galegedara, Galaha, Hewaheta, Ulapane, Bandarawela, Nuwara Eliya, Namunukula, Kegalla, and Kadugannawa.

Specimens.—The number of consignments of specimens received during the year was 490 ; of these a few consignments consisted of large numbers of specimens (*e.g.*, 26, 89, 120).

ROOT DISEASES.

Rhizoctonia bataticola (Taub.) Butler has been found to affect the roots of the following plants :—Tea (both bushes and seedlings), cacao, *Hevea*, beans, *Grevillea robusta*, *Albizzia moluccana* (both trees and seedlings), *Acacia decurrens*, *A. elata*, *Erythrina* (dadap), *Tephrosia candida*, *Clitoria cajanifolia*, soursop, custardapple, lime, chillie, *Coffea robusta*, cypress, rose, shoe-flower, plantain, tomato, *Aralia filicifolia*, juniper (seedling only), *Ochroma lagopus* and *Tristania conferta*. In many cases the *Rhizoctonia* occurs alone ; in others, it is accompanied by one or more of the older better-known fungi like *Fomes lignosus*, *F. lamaoensis*, *Ustulina*, *Poria*, *Rosellinia*, or *Diplodia*. In the latter case, it is necessary to determine which fungus is prior to the other in its time of attack, and a number of experiments designed to throw light on that point has been undertaken. At the same time, experimental inoculations with both cultural and natural material of fungi like *Fomes*, *Poria*, &c. are in hand, for it seems necessary to attempt to establish their status or at least clear away certain doubts concerning their parasitism that have arisen through the frequent presence of the *Rhizoctonia* in the same cases of root disease as themselves. Whatever their status—whether they are truly parasitic and whether *Rhizoctonia* is secondary to their attacks or *vice versâ*—the fact remains that in many cases the *Rhizoctonia* alone is responsible for disease and death. Notes on *Rhizoctonia bataticola*, its hosts in Ceylon, and the conditions of its occurrences have appeared in the Tropical Agriculturist for August, October, and December, 1926.

TEA.

Besides numerous cases of root disease with which were associated the fungi mentioned in the preceding paragraph, the following tea diseases have been reported during the year :—*Macrophoma* canker, white thread blight, red rust disease (*Cephaleuros*), and leaf diseases due to *Pestalozzia*, *Colletotrichum*, *Cercosporella*, *Phoma theicola*, and *Guignardia camelliae*. Recent examples of the supposed physiological dieback of shoots after pruning have been found to be in reality cases of *Rhizoctonia* root disease. A falling of tea seed-capsules was attributed to physiological causes. Reports of wood-rot (or branch canker) have not been numerous, but the trouble is prevalent. Certain fungi have been isolated from typical wood-rot specimens, and it is hoped to test their ability to cause wood-rot in inoculation experiments. Disease and death of young tea and of seedlings in nursery beds have been traced to various causes, namely, *Rhizoctonia* root disease, *Rhizoctonia*-cum-*Poria* root disease and attack of eelworms (*Heterodera radicicola*), but in other cases the cause of death has not been clear. Certain of the young plants showed a collar-rot which was associated with the presence of the *Rhizoctonia* in a few cases but not in all.

HEVEA.

Hevea root disease due in part, if not wholly, to *Rhizoctonia bataticola* is more prevalent than was suspected. In several cases, evidence of the primary attack of the *Rhizoctonia* and of the secondary nature of *Fomes lignosus*, *F. lamaoensis*, *Ustulina*, and *Diplodia* has been obtained. Pink disease has been reported only once during 1926, and *Diplodia* dieback has been shown to be in reality due to *Rhizoctonia* root disease in cases that have been investigated carefully in the field. A certain amount of work was devoted to a case of bark rot but no definite result was attained. Leaf fungi have included *Oidium*, *Sphaerella* and *Phyllosticta*, the last two of which are of little importance.

COCONUTS.

Root disease and leaf-break of coconuts are in need of investigation on a thorough scale. The tapering disease of certain districts is probably a symptom of root disease, and it has been found that certain fungi are associated with it. The root fungi ought to be tested in experiment and examination of diseased roots ought to be continued, but it has not been possible to give much time to this work. *Rhizoctonia bataticola* is suspected of causing coconut root disease. A certain amount of investigation has been devoted to leaf-break, and this problem also requires to be taken further than has been possible. The work done is discussed in the Yearbook for 1927. With the exception of a case of leaf disease with which were associated a *Pestalozzia* and *Sphaerella Gastonis* Sacc., no reports of other coconut diseases have been received.

GREEN MANURES AND SHADE TREES.

Certain green manures and shade trees are included in the list of hosts of *Rhizoctonia bataticola*. *Albizzia*, *Acacia*, and *Grevillea* seem to be susceptible to attacks of the fungus. A considerable amount of work has been done on a disease of *Vigna* due to *Rhizoctonia solani* which occurs in various parts of the Island and causes the *Vigna* to die out in patches, and a *Phyllosticta* leaf-spot of the same plant has been reported. An *Albizzia* seedling disease has been investigated and found to be due to *Rhizoctonia bataticola*.

PADDY.

The disease of paddy due to *Sclerotium oryzae* has been in evidence. It can be very harmful, and investigation of the biology of the fungus is in progress. *Rhizoctonia solani* is also associated with paddy disease.

MISCELLANEOUS.

The following diseases or fungi have also been reported during 1926 :—*Parodiella perisporioides* on *Crotalaria* leaves, *Phyllosticta* and *Mycosphaerella* on papaw leaves, *Marchalia* leaf-spot of *Artocarpus*, *Phytophthora* rot of breadfruit, scorch of coffee leaves, pink disease of an unidentified flowering shrub, a rot of peaches (probably due to a *Phoma*), anthracnose of fruits (*Gloeosporium*), dieback of stems (*Vermicularia*) and *Oidium* of leaves of chillies accompanied by *Rhizoctonia bataticola* disease of the roots, smut (*Ustilago coicis*) of Job's Tears, *Oidium* mildew of orange and rose, carnation rust (*Uromyces caryophyllinus*), water-logging of kohila (*Lasia aculeata*), *Hemileia* on coffee, *Stilbum cinnabarinum* on rose twigs, *Gloeosporium musarum* on plantain fruits, *Rhizoctonia bataticola* and eelworms on plantain roots, anthracnose of *Aloe*, and eelworm and *Rhizoctonia bataticola* diseases of tomato roots. *Bacterium solanacearum* was found to have attacked tobacco, and an interesting case of maize disease due to *Rhizoctonia solani* was investigated. An account of the maize disease appears in the Yearbook. The same publication contains accounts of investigations into diseases of herbaceous plants caused by *Sclerotium rolfsii*, and notes on recent Ceylon hosts of the eelworm *Heterodera radicicola*. Tea inoculation experiments with a cacao pod *Macrophoma* from the Gold Coast have been done for the Imperial Bureau of Mycology, and the physiological conditions of the parasitism of *Rhizoctonia solani* have been investigated. Certain inoculation experiments with the common *Diplodia* are in progress.

PUBLICATIONS.

Besides the Yearbook papers and articles in the Tropical Agriculturist mentioned above, accounts of a bacterial disease of betel (by Mr. Ragunathan), of the relationships between certain Phytophthoras (by Dr. Gadd) of the physiological conditions affecting the parasitism of *Rhizoctonia solani* (by Mr. Park) and of the occurrences of *R. solani* in Ceylon (by Dr. Gadd and Mr. Bertus) have been sent to press. An attempt is being made to continue the valuable bibliography of Ceylon agriculture and botany compiled by Mr. Petch and published as Peradeniya Manual III.

W. SMALL,
Mycologist.

Peradeniya, January 6, 1927.

II.—REPORT OF THE ENTOMOLOGICAL DIVISION.

THE consignments of specimens for examination and report received during the year numbered 227, of which 41 per cent. were pests of tea, 25 per cent. were pests of green manure and shade trees, and the remainder were pests of other crops and miscellaneous plants.

During 1926 visits were paid by officers of this division to estates in the following planting districts to investigate insect pests :—Gampola (one estate), Kandy (two), Hunasgiriya (one), Matale South (one), Dumbara (three), Hewaheta (one), Dolosbage (two), Dimbula (two), Maskeliya (twenty-three, five twice), Haputale (eleven, two twice), Bandarawela (one), Badulla (one), Passara (three), Ratnapura (three, one twice), Chilaw (one).

PLANT INSPECTION AND FUMIGATION.

Colombo—During the year the inspection of plant imports were carried on at the Baggage Office, the General Post Office, and the Fumigatorium, and a whole-time Inspector was appointed from October 1. Those consignments found on inspection to be free of pests were admitted without treatment, whilst all consignments found infested were treated at the Fumigatorium.

The following figures indicate the number of plant imports handled at the three places, the first figures showing the number of consignments, and those inside the brackets giving the number of packages in each lot of consignments. The total number of plant imports inspected was 736 (4,377) made up as follows :—Citrus fruits 184 (3,273), of which 86 (2,699) were fumigated ; plants, bulbs, &c., 358 (836), of which 69 (152) were fumigated ; and seeds 194 (268), of which 6 (24) were fumigated. The total number fumigated was therefore 161 (2,876), or about 21 per cent. of the total consignments and 65 per cent. of the total packages received. It will be seen that the packages of citrus fruits formed nearly three-quarters of the total number of packages received, and that over 82 per cent. of the citrus packages had to be fumigated, as being more or less infested with scale insects.

Several visits have been paid to the Fumigatorium by the Entomologist during the year.

The construction of the new Fumigatorium is being taken in hand by the Harbour Engineer's Department.

Peradeniya.—During 1926, eight consignments consisting of nineteen packages of plants and seeds were inspected by the Mycologist and Entomologist prior to export to various countries, and the majority of them were fumigated. Eight samples of tea seed were inspected by the Mycologist and Entomologist during the year.

INSECT PESTS.

Tea.

The investigation of termites (*Calotermes* spp.) has been continued by the Assistant Entomologist during the year. Breeding experiments in the laboratory with the three species have been carried on, and experiments have been made under field conditions with certain insecticides, but none of these has been really successful. A full progress report on these preliminary investigations was published in the Tropical Agriculturist for August, 1926, pp. 67–79. Since it has become evident that *C. dilatatus* (and possibly *C. militaris*) utilizes wounds through which to enter the bushes, two experiments have been started to try and heal wounds due to wood rot by treating small plots of pruned tea with different manures in varying dosages. About 160 bushes at Peradeniya and about 6,000 bushes on an estate in the Hewaheta district have been so treated and both experiments are being supervised by the Assistant Entomologist. In both cases sample photographs have been

taken of typical cankered bushes in each plot after pruning and the same bushes will be photographed again at the end of two years, *i.e.*, after the next pruning. Many new records of the occurrence of *C. militaris* and *C. dilatatus* have been obtained during the year and a map has been prepared showing the distribution of Calotermes in Ceylon for publication with a brief note in the Yearbook for 1927.

Tortrix (*Homona coffearia*) has been investigated during the year under field conditions during the course of visits to estate in the Maskeliya, Dimbula, and Dolosbage districts, and further observations on the life-history of this pest have been made by the Entomologist under laboratory conditions at Peradeniya. Notes on these investigations have been prepared for publication in the Yearbook for 1927.

The fringed nettle grub (*Natada nararia*) was prevalent on some estates in the Passara district. Reports of the occurrence of the caterpillars of *Prodenia litura* and *Terias silhetana* as minor pests of tea were received during the year.

Green bug (*Coccus viridis*) and brown bug (*Saissetia hemispherica*) were investigated during the early part of the year. A circular letter with a questionnaire on these pests sent round to estates in the Haputale and Bandarawela districts indicated that they were prevalent in patches on a few estates. At a meeting of planters from the two districts concerned advice was given on the subject of more intensive cultivation for infested areas.

From October 1, 1926, the investigation of all insect pests of tea was handed over to the Tea Research Institute of Ceylon, with the exception of termites, green bug, and brown bug, the investigation of which is being continued by this Department.

Rubber.

The prevalence of the black scale (*Saissetia nigra*) over small areas was reported from a few estates. Specimens of the bark-eating caterpillar (*Comocritis pieria*) were sent in from an estate in the Southern Province.

Coconuts.

The coconut caterpillar (*Nephantis serinopa*) has been prevalent on some estates in the North-Western Province, but is partially controlled by small parasites. Further attempts are being made to get these parasites established in the Batticaloa District where they are not known to be present. Small outbreaks of caterpillars in the Southern Province proved to be mainly nettle grubs (*Thosea aperiens*) and hesperid larvae (*Suastus gremius*).

Cotton.

An outbreak of the cotton semi-looper (*Cosmophila erosa*) occurred at the recently opened Experiment Station at Vavuniya and the cotton leaf-folder (*Sylepta derogata*) was also prevalent at the same time. The outbreak was investigated on the spot by an officer of this division. The small tussock caterpillar (*Notolophus posticus*) was reported as a minor pest of cotton in the North-Western Province.

Green Manures, Shade Trees, and Cover Crops.

Dadap (*Erythrina* spp.) has been attacked by the following insects during 1926 :—The leaves by the spotted locust (*Aularches miliaris*), the dadap caterpillar (*Taragama dorsalis*), the tussock caterpillar (*Notolophus posticus*), and the leaf-folder (*Agathodes ostentalis*) ; the shoots by the boring caterpillars of *Terastia meticulosalis* and mealy bugs (*Pseudococcus* spp.) ; the branches and stems by the bark-eating caterpillar (*Arbela quadrinotata*) and by the grubs of a long-horned beetle (*Coptops aedificator*). Reports were received from two estates that the mealy bugs got on to the tea growing underneath.

Albizzia trees on several estates have been seriously defoliated by the caterpillars of *Terias silhetana* and on one estate by the larvae of *Eupterote geminata* which is usually a dadap pest ; there have been a few reports of attacks to the stems by the *Arbela* borer.

Gliricidia has been subject to attacks by green bug (*Coccus viridis*) mealy bugs (*Pseudococcus* spp.) and aphids, and in some cases the scales or mealy bugs have got on to the tea growing underneath the Gliricidia.

Boga medeleoa (*Tephrosia candida*) has been seriously damaged in patches by the scale insect, *Ceroplastodes cajani*, and specimens of fluted scale (*Icerya purchasi*) were received from one estate on this plant.

Indigofera endecaphylla was attacked by the leaf-eating caterpillars of *Dichomeris ianthes*.

Vigna oligosperma has been attacked by small red leaf-mining caterpillars (*Cyphosticha coerulea*), by small leaf-spotting flea-beetles (*Pagria signata*), and *Vigna Catjang* by the pod-boring caterpillars of (*Polyommatus boeticus*).

Vegetable and Food Crops.

A number of pests of the above crops have received attention from the Senior Assistant in Entomology during the year. The chrysomelid beetles belonging to the genus *Aulacophora* have been under further investigation and the following cucurbits have been recorded as food plants of the four species under observation.

A. abdominalis on bottle gourd (*Lagenaria vulgaris*) ; cucumber (*Cucumis sativus*) ; ash pumpkin (*Benincasa cerifera*) ; pumpkin (*Cucurbita maxima*) ; vegetable marrow (*C. Pepo*) ; and squash (*C. Melopepo*).

A. atripennis on bitter gourd (*Momordica Charantia*) and luffa (*Luffa acutangula*). The leaves of the latter are badly attacked. *A. stevensi* on snake gourd (*Trichosanthes Anguina*). The roots are severely attacked by the grubs and the leaves eaten by the beetles. *A. nigripeta* on ash pumpkin. This appears to be the first record of this beetle as a pest.

The following other insects were recorded or observed attacking various vegetable and food crops during the year :—*Plusia peponis*, *Prodenia litura*, and *Chaetodacus cucurbitae* on snake gourd ; *Hymenia fascialis* on beetroot ; *Crocidolomia binotalis* on radish ; *Plutella maculipennis* on mustard ; *Agromyza* sp. on bandakka (*Hibiscus esculentus*) and black gram (*Phaseolus Mungo* var. *radiatus*) ; *Plotheia nephelotis* and *Euzophera perticella* on brinjal (*Solanum Melongena*) ; *Cosmopolites sordidus*, tingid bugs (*Cadamustus typicus*) ; and aphids (*Pentalonia nigronervosa*) on plantain (*Musa sapientium* vars.).

Miscellaneous Plants.

Among the insects recorded or observed on various other plants of economic importance may be mentioned the following :—*Phthorimaea heliopa* the tobacco stem-borer ; *Hypsipyla robusta* in mahogany shoots ; *Paralecanium expansum* on leaves of nutmeg (*Myristica fragrans*) ; moth borer (*Chilo simplex*) ; and termites on sugar-cane.

Special Investigations.

In addition to the investigations on tortrix by the Entomologist and on termites by the Assistant Entomologist, the following investigations have been undertaken during the year by other officers, of this division :—

Bean Fly (*Agromyza phaseoli*).—The Senior Assistant in Entomology has carried out a series of experiments for the control of this pest. Out of sixteen varieties of beans it has been found that two varieties appear to be practically immune, while two other varieties have been heavily attached and killed out. Various insecticides were tried on young plants of Lima bean with the object of preventing oviposition by the flies, but these gave no satisfactory results. The control plots indicated that this variety is capable of surviving attacks of the fly providing that the soil is manured. Similar trials are to be made with the two susceptible varieties. There are indications that manuring is an important factor in enabling bean plants to survive attacks and produce good crops.

Insecticides.—Experiments have been carried out on a small scale in the insectary by the above officer with various standard insecticides belonging to the group of " stomach poisons. " Some preliminary notes on the results of these experiments are being published in the Yearbook for 1927.

Copra Beetles.—The Junior Assistant in Entomology carried on the experiments with the small copra beetles (*Carpophilus humeralis* and *C. dimidiatus*) started in 1925 by the Entomologist. The preliminary work indicated that these beetles do not attack perfectly sound stored husked coconuts but only those which are cracked or damaged in the soft eye. During the early part of 1926 the life-history of the larger and more numerous of the two species (*C. humeralis*) was worked out. Experiments carried out on a small scale with likely insecticides, mainly fumigants, indicate that calcium cyanide merits a further trial under storage conditions, if ever these beetles become prevalent again.

Stored Paddy.—The same officer subsequently started an investigation into the storing of seed paddy with the object of ascertaining to what extent the germination of stored paddy is affected by the attacks of certain grain pests, and how far special precautions in storing or in treatment of stored seed are necessary. Visits were paid to the Experiment Station, Anuradhapura, and to village storehouses in the Kandy District in connection with this work.

Calcium Cyanide.—The possibilities of the use of this fumigant against scavenging termites, against some of the more important pests of tea and against miscellaneous garden pests were investigated by Dr. W. H. Brittain during his stay in Ceylon. The results of his experiments carried out in co-operation with officers of the Entomological Division were published in the Tropical Agriculturist for July, 1926, pp. 45–49.

Insectary.

The life histories of the following insects have been worked out by the Laboratory Assistant during the year :—*Terastia meticulosalis*, *Agathodes ostentalis* and *Otinotus oneratus* on dadap ; *Eupterote plumipes* and *Lenodora vittata* on paddy ; a note on *Terastia* and *Agathodes* is being published in the Yearbook for 1927. The breeding of Eri Silk-worms (*Attacus ricini*) with fresh " seed " obtained from India has been continued and small consignments of " seed " or worms have been distributed to local breeders on request.

Cochineal Insect.—The breeding of this imported beneficial insect (*Dactylopius tomentosus*) on prickly pear (*Opuntia dillenii*) has been continued during the year and it has been successfully established under field conditions at Trincomalee with the co-operation of the Irrigation Department, and at Jaffna with the assistance of the Divisional Agricultural Officer, Northern Division. A note on this insect appeared in the Tropical Agriculturist for November, 1926, pp. 290–292.

Laboratory.

The correspondence files have been re-arranged under a more convenient system of file headings. The card files have been kept up to date and many new records of insects have been added to the list originally published in Bulletin No. 67. The termite collection has been overhauled and a second consignment of termite materials has been sent to the Imperial Bureau of Entomology for identification.

Agricultural Shows, Lectures, &c.

Exhibition cases illustrating the more important insect pests of the principal crops of the Island were sent as exhibits at the Agricultural Shows held at Kandy and Weligama. Exhibits of crops pests have been lent to the Plant Pest Inspectorate to illustrate lectures on plant pests. Weekly lectures in Entomology have been given by the Senior Assistant in Entomology to the first and second year students of the Farm School, Peradeniya.

Agricultural Conference.

Papers were read by officers of the Entomological Division at the first Agricultural Conference held at Peradeniya during March.

Publications.

In addition to the publications previously mentioned, the following bulletin has been published :—" Manuring in Relation to the Control of Shot-hole Borer of Tea " by C. H. Gadd and F. P. Jepson, Bulletin No. 78. A bibliography of all literature dealing with shot-hole borer of tea (*Xyleborus fornicatus*) has been prepared by the Assistant Entomologist for publication.

Peradeniya, January 15, 1927.

J. C. HUTSON,
Entomologist.

III.—REPORTS OF THE PLANT PEST AND DISEASE INSPECTORS.

CENTRAL.

Inspections.

Inspections were varied and made according to seasons. The first and part of the last quarter were devoted to recording the incidence of pests and diseases of coconuts, plantains, arecanuts, and other village garden crops in the Four Korales of the Kegalla District, of which the following pattuwas of Galboda korale were completed, viz., Gannemeda and Tannipperu.

During the monsoons inspections of estates applying for permission to dispose of nursery stock were made prior to the issuing of permits for the sale of tea plants.

Quarterly inspections of Water Hyacinth infested areas were regularly made.

Educational Propaganda.

In co-operation with the Divisional Agricultural Officer a series of public lectures, illustrated by the optical lantern, which latter has been a new departure in the educational propaganda carried out by this division, were given to agricultural bodies at the following centres on the undermentioned dates :—

Public Lectures.

Date.	Place.	District.	Audience.
January 17 ..	.. Galagedara	.. Galagedara	.. Headmen and cultivators.
January 24 ..	.. Hatarliadde	.. Galagedara	.. do.
January 31 ..	.. Alakola-anga	.. Kadugannawa	.. do.
February 4 ..	.. Maswela	.. Kotmale	.. do.
February 13 ..	.. Ulapane	.. Ulapane	.. do.
March 20 ..	.. Nagalla	.. Matale	.. do.

Lantern Lectures.

Date.	Place.	District.	Audience.	Attendance.
June 27 ..	Alawatugoda ..	Matale ..	Headmen and cultivators ..	70
July 9 ..	Trinity College..	Kandy ..	Farmers' Club ..	250
July 14 ..	Nuwara Eliya ..	Nuwara Eliya ..	Vegetable growers	200
July 16 ..	Kadadora ..	Kotmale ..	Headmen and cultivators ..	200
July 17 ..	Tyspane ..	do. ..	do. ..	200
July 18 ..	Watadara ..	do. ..	do. ..	200
July 19 ..	Maswela ..	do. ..	do. ..	200
July 26 ..	Kumbalgamuwa	Walapane ..	do. ..	100
July 27 ..	Nildandahena ..	do. ..	do. ..	100
July 28 ..	Udamadura ..	do. ..	do. ..	100
August 1 ..	Palapatwela ..	Matale ..	do. ..	150
September 18..	Sangilipalama ..	Pundaluoya ..	do. ..	125
October 5 ..	Wattapola ..	Kadugannawa ..	do. ..	125
October 6 ..	Aludeniya ..	Gampola ..	do. ..	70
October 8 ..	Pussellawa ..	Pussellawa ..	do. ..	75
October 11 ..	Ginigathena ..	Nawalapitiya ..	do. ..	100
October 12 ..	Walahagoda ..	Gampola ..	do. ..	125

It will be seen from the foregoing table that the attendances at these lectures, specially where illustrated, are encouraging, and are found to be of benefit in disseminating knowledge on the pests and diseases of crops. It is also encouraging to know that small cultivators are beginning to realize the usefulness of plant sanitation and progressive agricultural methods, to further foster this object of the Inspectorate illustrated leaflets in the vernaculars on the pests and diseases of various crops have been distributed at meetings.

Meetings.

The following seven meetings of the District Agricultural Committees were attended :—

January 30, Nuwara Eliya; July 10, Matale; July 12, Kegalla ; July 14, Nuwara Eliya ; October 7, Nuwara Eliya; October 18, Matale; October 21, Kandy; also the Estates Products Committee Meeting of January 7.

Shows.

This division was represented at the following Shows held at various centres of the Province :—

April 5, Nuwara Eliya Agri-Horticultural Show ; April 10, Harispattuva Show, Katugastota; June 27, Alawatugoda Show, Matale; August 1, Palapatwela Show, Matale ; August 23–25, Kandy Agri-Horticultural Show ; September 18, Sangilipalama Show ; Pundaluoya.

Through the medium of these Shows the Inspectorate was able to bring the cultivators in touch with the Department.

Permits.

During the year 450 applications for perimts were received in this office for disposal and all but four were granted. This total is in excess of the previous year by 93 ; 75 per cent, of these applications were from the small growers. The total number of plants transferred under these permits was 4,451,877.

Water Hyacinth.

There are only four places of infestation on record in the Central Division, viz., Huduhumpola, Kandy ; two swamps in Gampola ; Kotabogoda tank owned by Mr. B. D. Yatawara in Kotabogoda village of Meda pattuwa of Galboda korale of the Kegalla District; and a swamp on the left side of the railway line on the Colombo side in the neighbourhood of Ambepussa Railway Station.

General.

Pests.

Tea.—Xyleborus fornicatus Shot-hole Borer. Though generally prevalent does not appear to be on the increase, there being only a single record of an estate where its presence for the first time was recorded.

Homona coffearia Tea Tortrix. A rather severe attack was reported upon one estate. The measures recomended by the Entomologist were carried out.

Zeuzera coffeae Red Borer. Records of the presence of this borer in nursery stock have been received from Walapane and Koslanda. Measures of control were communicated to the persons who reported its presence.

Paddy.—Schoenobius incertellus was found to have caused a fair amount of damage to paddy in Yatigammana and Gallanga villages in Kandupalata korale of Yatinuwara division of the Kandy District.

Leptocorisa varicornis present but not serious.

Coconuts.—Oryctes rhinoceros Black Beetle, *Rhynchophorus ferrugineus* Red Weevil. Everywhere in evidence, but attack slight. Much interest in these two beetles is being evinced by cultivators. Recommended measures of control are being adopted.

Aularches miliaris. Spotted locust has been noticed to feed on coconuts but not to any serious extent. The possibility of its developing into a serious pest is being closely watched by the Inspectorate.

Plantains.—Cosmopolites sordidus, Odoiporus longicollis generally observed, loss through damage insignificant.

Cotton.—Cosmophila erosa was taken on the Nalanda Experiment Station. Measures for eradication were immediately taken.

Limes.—Cerambycidae. A grub of a Cerambycid beetle was taken on limes on the Nalanda Experiment Station and sent in to the Entomologist.

Vegetables.—(Bandakka) *Dysdercus cingulatus.* Plant sucking bug.
(Brinjal) *Euzophera perticella.* Stem borer.
(Snake Gourds) *Plusia peponis.* Leaf eating caterpillar.
Chaetodacus cucurbitae. Boring maggots.
Aulacophora stevensi. Leaf eating beetle.

The above vegetable pests were taken in gardens in the following villages of Matale South, viz., Padiwita, Raithlawa, Elvala, and Kunwella.

Diseases.

Tea.—Poria and *Diplodia* were generally met with on estates during the year under review It is of interest to find that immediate measures of treatment have been taken in all cases.

Coconuts.—Thielaviopsis paradoxa. Stem Bleeding disease of coconuts occurs throughout, approximately 15 per cent. of trees were found infested in the coconut-growing district of this division.

Bacillus coli Bud Rot.

Plantains.—Bunchy top is much on the decline. Special investigations of bunchy top infested plantains were made within a radius of three miles of Peradeniya, and resulted in a species of Aphids being collected on these diseased plaintains. These Aphids were forwarded to the Entomological division for identification.

Rhizoctonia bataticola.—Specimens of diseased plantains from Kegalla submitted to the Mycologist showed on examination to be *Rhizoctonia bataticola.*

Betel.—Soft Rot of Betel was found to have been bad in the Erabadupela village of Meda pattuwa of Galboda korale of the Kegalla District.

Albizzia.—Rhizoctonia bataticola was found on *Albizzia* seedlings in a nursery at Helbodde estate, Pussellawa.

F. BURNETT,
January 12, 1927. Acting Inspector, Plant Pests and Diseases (Central).

SOUTHERN.

Inspections.

Work during the year was carried out, as far as possible, along the same lines as last year, certain modifications had to be made, however, to meet the demands caused by the water hyacinth eradication campaign. This special work was commenced in June and carried on, with the exception of a short break in September, throughout the year. It necessitated at the beginning the transfer of two Sub-Inspectors to the Hambantota District and later that of another to the Kalutara District. The shortage of staff for inspection work in the Galle District and adjoining areas occasioned by these transfers was made up for by the supply of an additional Sub-Inspector (in November) from the Central Division. These re-arrangements have depleted the staff available for inspection work in the Kalutara, Galle, and Matara Districts, and consequently there is a considerable decrease in the number of estates visited compared with last year. On the other hand, by combining local inspections with those made in connection with the water hyacinth work, there

has been a far greater increase in the number of village gardens, small holdings, and paddy areas inspected. This in itself has been felt to make for progress as it has resulted in a closer contact between the cultivators and the inspecting officers stationed in or frequently visiting new areas. Further, the advantage cannot be considered to be only on one side ; as, without doubt, the staff of the Inspectorate have gained a wider knowledge of local variations which is of potential value in dealing with diseases and pests.

Inspections of estates, gardens, and paddy areas were carried out in the Kalutara, Galle, Matara, and Hambantota Districts. The total circuits by the whole staff during the year comprised 468 days, an increase of 120 days over last year and due to the additional inspections carried out in connection with the water hyacinth work. The cultivations inspected consisted of coconuts, rubber, tea, cotton, plantains, vegetable gardens, areas of mixed cultivations, and paddy. The number of estates visited was 36, comprising an approximate acreage of 11,000 acres. The amount of correspondence and office work involved has doubled during the year.

The Inspectorate had a representative section, dealing with all the local pests and diseases, on exhibition at the Weligama Agri-horticultural Show which was opened by His Excellency the Governor on July 24.

PESTS AND DISEASES.

Most of the commonly occurring pests and diseases of the various crops were recorded during the year. As a complete list of these will probably be published elsewhere, only new additions and notes on serious pests and diseases are recorded here.

Albizzia moluccana.—This tea shade tree, which is general throughout the Galle and Matara Districts, was badly attacked both by the *Arbela* caterpillar borer (*Arbela quadrinotata*) and by a form of die-back and gummosis believed to be due to root attack by the fungus *Rhizoctonia bataticola.*

Coconuts.—Larvae of the following insects were recorded feeding on the leaves of the palms :—

Suastes gremius, numerous on one estate where they were readily eaten by crows ; *Thosea aperiens ;* and a *Limacodid* larva.

Cotton.—The leaf rolling caterpillar (*Sylepta derogata*) was the principal pest present throughout the cotton areas. On the whole, however, the damage done by this pest was slight.

Dadap.—A small area being opened up in tea, and where dadaps (about 18 months old) were being tried, was badly attacked by the dadap shoot borer (*Terastia meticulosalis*) ; about 90 per cent. of the plants being affected.

Plantains.—Observations during the year indicate that there has been a slight decrease in the number of plants noted to be suffering from bunchy top disease.

The Water Hyacinth Eradication Campaign.—The water hyacinth (*Eichhornia crassipes*) has long been present in parts of the Southern Province. In the West Giruwa pattu records of its presence date back a number of years and since at least 1922 periodic efforts have been made to clear certain areas. In the East Giruwa pattu there are records of its presence since 1925. In 1926 the plant was found to be growing in small quantities in a number of localities in the Kalutara District, and also was carried by water into an ela in Magam pattu from the East Giruwa pattu. Accordingly, in June 1926, as this weed was becoming most serious in parts of the Hambantota District, funds were provided and a strenuous eradication campaign was commenced. The first step in the work was the carrying out of a most careful and detailed inspection for infested areas to ascertain the exact extent of this pest. These inspections brought to note that there were many more infested areas than had hitherto been known to exist. Many of these places were isolated, but connecting water channels, &c., were found to link up several of the infestations and a definite rotation in which the work should be done was drawn up for each area.

Clearing work first started in the neighbourhood of Ambalantota about the beginning of July, and much progress has been made. A number of drainage channels, tanks (including one of the major works—Oluwilawewa), swampy places and paddy areas have been thoroughly cleared up once ; the infested ela in Magam pattu has also been dealt with. The most heavily infested place in this area was an ela (Sitawaka-ela) which joins the Walawe-ganga at its mouth. This ela which is about 2 miles long and of a considerable depth was packed full of water hyacinth plants throughout the greater part of its course. The clearing of this ela, which is still in progress and is now nearing completion, presented several difficulties. It was found that the only reliable method of clearing was first to make a channel through the weed by using boats, to clear the banks, and by means of ropes attached to rakes bring all the plants to the banks and haul them out by hand. In this way many tons of the plant have been removed, the work is progressing most satisfactorily and only a few months' work remain to complete the clearing of this area.

In the West Giruwa pattu, after the inspections had been completed, clearing work was commenced (in October) in the Walasmulla-Wiraketiya area. The water hyacinth has been removed from several infested tanks ; one of these was a major irrigation work (Udukiriwilawewa), and the assistance rendered by the local irrigation staff during this work was much appreciated. The remaining six tanks cleared were all minor works and some of them were seriously infested.

Small infested areas were found in the neighbourhood of Bentota, Matara, and Weligama ; these have all been cleared and it is expected that a few more periodic clearings will eradicate the plant from these places.

In July a report was received that water hyacinth was present in the Kalutara District. It was not possible to start detailed inspections until November, and there is no evidence, up to date, that any large infestations exist in this district.

A leaflet (No. 40) on the water hyacinth pest, in English, was issued in November, and copies in Sinhalese are in course of publication.

On the whole the progress of the work has been satisfactory and the possibility of eradicating the plant from the Southern Province, with the exception of one or two swamps the clearing of which may be impracticable, is hopeful.

W. C. LESTER-SMITH,

January 21, 1927. Inspector, Plant Pests and Diseases (Southern).

NORTH-WESTERN.

The Inspectorate, North-Western Division, was started in January, 1926, in the charge of a Plant Pest Inspector assisted by two Sub-Inspectors. The division includes the North-Western Province and the Districts of Colombo and Negombo of the Western Province.

Inspections and Circuits.

250 estates and 118 gardens with a total acreage of 53,476 acres were inspected. These include 231 coconut estates and 23 gardens (47,957 acres), 16 rubber estates (4,821 acres), 2 tea estates (350 acres), 1 cinnamon estate (40 acres), 55 plantain gardens (250 acres), and 40 tobacco gardens (58 acres). In addition, extensive paddy areas have been regularly inspected in various parts of the division.

Pests and Diseases previously unrecorded.

Two unrecorded diseases were reported on coconuts, one case of each only. No final cause of disease could be determined from these.

Two new diseases of plantains were noted, one considered due to a species of *Rhizoctonia*, the other under investigation.

The soil fungus *Rhizoctonia bataticola* has been reported for the first time on roots of chillies.

A root disease of paddy which had entirely killed nearly an acre of paddy came under notice two months later, and only a tentative determination was possible as *Sclerotium oryzae*. This area is noted for further observation.

Investigations.

(*a*) A short investigation on the coconut caterpillar pest to determine the percentage of infestation, varieties of parasties and their distribution and percentage of parasitization was conducted at Madampe, a badly infested area.

(*b*) The problem of tapering trees and root disease in coconuts has received attention throughout the year, and this division is co-operating with the Mycological division in an investigation on this subject.

Pests and Diseases.

Coconuts.—The coconut caterpillar (*Nephantis serinopa*) has been found in an active state in all parts of the North-Western Province, and to a less extent in the Colombo and Negombo Districts. In a few cases alone serious damage has been done to areas from 20 to 50 acres. Areas inspected were: Chilaw, Madampe, Marawila, Kurunegala, Polgahawela, Alawwa, Giriulla, Badalgama, Dandagamuwa, and Maradana (infestation severe to moderate and mild); Gampaha, Veyangoda, Padukka, and Kosgama (infestation very mild).

The Black Beetle is found everywhere, and the Red Weevil on young plantations mostly.

Bud Rot: Only a few cases have been recorded.

Instructions on the control of the above pests have been widely disseminated by inspections and by educational lectures, and landowners are paying greater attention to control measures.

Minor pests and diseases recorded were bleeding disease, grey blight (*Pestalozzia palmarum*), nut fall, blue-striped nettle grub (*Parasa lepida*), scale insect (*Chionaspis dilatata*), spotted locust (*Aularches miliaris*), and a caterpillar (*Elymnias fraterna*).

Paddy.—The paddy fly (*Leptocorisa varicornis*) has been the most troublesome pest. No failure of crop due to this pest alone has been found, and generally no great damage has been done.

Instruction on control measures were given during inspections and at lectures to cultivators.

Swarming caterpillar (*Spodoptera mauritia*) was found in swarms on fields at Ja-ela. Flooding the fields was resorted to. No serious damage has been reported from other districts.

Minor pests and diseases were false smut (*Ustilaginoidea virens*), blast (*Piricularia oryzae*), paddy stem borer (*Schoenobius incertellus*), and a caterpillar (*Parnara mathias*).

Plantains.—Bunchy top is found, but on a smaller scale and less frequently than in previous years. Aphids supposed to be connected with the spread of this disease were found in this district and were submitted to the Entomologist.

Minor pests are the stem and root boring weevils.

Tobacco.—This plant, grown extensively in Kurunegala and Chilaw Districts, regularly sustains some damage from several pests and diseases. Causes determined were eelworm (*Heterodera radicicola*), a boring insect (*Phthorimala heliopa*), *Rhizoctonia bataticola*, and a wilt due to *Bacillus solanacearum*.

Rubber.—Brown bast, bark rot, and canker are the prevailing diseases.

Tea.—Shot-hole borer and tea tortrix have been reported from Padukka.

Cotton is little grown in this district. A leaf rolling caterpillar (*Sylepta derogata*) had, however, done much damage on one field. Other pests were a scale insect and a caterpillar (*Notolophus posticus*).

Vegetables.—Various insect pests are found but no damage is sustained from them.

Water Hyacinth.

This weed has appeared in the followimg areas:—Negombo, Minuwangoda, Chilaw, Madampe Hettipola, Wariyapola. Eradication work is proceeding.

Educational Lectures.

These form a part of the work of spreading information on pests and diseases among small growers.

Two lectures were delivered at the Conference of Co-operative Societies held at Kurunegala in August, and lectures were delivered at eight other centres. As a consequence several requests for inspections and advice have reached us during the year, and many specimens submitted.

PUBLICATIONS.

A paper on pests and diseases of coconuts in the Kurunegala District was read before a meeting of the Kurunegala Planters' Association. Two articles on important pests and diseases of coconuts and of plantains and tobacco have been contributed to the Yearbook of the Department, 1927.

MUSEUM.

A collection of important pests of coconuts, paddy, and plantains has been made, and is exhibited in the laboratory attached to this office.

SPECIMENS.

Fourteen specimens were sent to the Mycologist, one to the Chemist, and eight to the Entomologist for identification and report.

CECIL N. E. J. DE MEL,
Kurunegala, January 21, 1927. Plant Pest Inspector, North-Western Division.

IV.—REPORT OF THE CHEMICAL DIVISION.

DURING the year under review the work done by this division was on the same lines as those of last year. There was a considerable increase in analytical work over the previous year, and this necessitated the addition to the staff of a second assistant. The investigational work started in 1925 on problems connected with green-manuring, the leaching of fertilisers from soils, &c., was continued. With the appointment of the Chemist as Chief Chemist under the Fertilizers' Ordinance of 1901, analyses of manures for private parties have been undertaken in this laboratory when a trade dispute occurred. Correspondence on questions of a chemical nature has increased.

ANALYTICAL WORK.

The total number of samples analysed was 364. These included 225 "Muddy Liquids" and "Moist Soils" from the soil erosion plots on the Experiment Station, Peradeniya, for the determination of "total solids" and "dry matter" respectively. The remaining 139 included among others, the following:—Soils, fertilizers and manures, limestones, insecticides, green manures, grasses (for nutritive values as well as mineral constituents), artificial and natural farmyard manure and raw materials used in the preparation of the former, soil and irrigation waters, ensilage, milks, cattle and horse feeds for mineral constituents, methylated spirits, sugar canes, citronella grasses, and tea leaves for the presence of arsenic. In addition to these a considerable number of analytical determinations chiefly of ammonia, nitrates and nitrites in soil solutions was made in connection with the research work undertaken.

Systematic analyses of the commonly used leguminous and non-leguminous green manures were carried out because of the frequent inquiries made as to the composition of specific green manures. In all 29 samples were analysed, 10 being of non-leguminous plants.

Analyses of several samples of fodder grasses were made for feeding values. Mineral analyses of these and of other cultivated grasses from various parts of the Island were also undertaken, as recent research in the British Isles and elsewhere had demonstrated the importance of a sufficiency of mineral elements in the rations of farm animals. Ceylon cultivated grasses generally, with the exception of those from Jaffna, were found to be deficient in phosphoric acid and to a lesser extent in lime. In the same connection mineral analyses of the more widely used feeding stuffs were made for the Government Veterinary Surgeon.

Qualitative examinations were made for the presence of arsenic of 16 samples of tea-flush and leaves from bushes which had been treated with arsenical baits for tea termites. The presence of traces of arsenic was detected in all cases in both flush and leaves, and especially in the former.

A sample of artificial farmyard manure prepared from sisal residues at the Anuradhapura Experiment Station was sent for examination and report. Analyses indicated no gain of nitrogen in the decomposed organic material. What, however, the experiment demonstrated was that decomposition of the cellulose and fibrous tissues of the organic residues had taken place in the comparatively short period of five months. This, curiously enough, coincides with the period during which the effects of green manuring, from the standpoint of nitrification, last in Ceylon soils.

Analyses were made of eight samples of sugar cane from the Experiment Station, Jaffna. The sucrose percentages and the purities were found to be generally low. Barbados and 131P gave highest purities.

Five samples of citronella grass from the Borala Experiment Station were forwarded for analyses. The oil was extracted by steam distilation. Yield figures on calculation showed that from 125 to 300 lb. of the grass would be needed to give 1 lb. of oil. Maha Java gave the poorest, and Mana Peradeniya and Maha Local the highest yields of oil. Owing to the small quantities of oil obtained in the laboratory, chemical analyses of the oils could not be carried out. Investigations into citronella oils are however to be taken up this year.

Research Work.

The laboratory and field experiments, the latter started at the Experiment Station, Peradeniya in December, 1925, on the decomposition of green manures in Ceylon soils were discontinued at the end of August when it was considered that they had served the purpose for which they were initiated. Among other interesting results obtained the following may be stated :—

(1) Maximum nitrate-accumulation or "nitrification" in the soil, in both laboratory and field experiments takes place between the 6th and 8th weeks, but nitrification continues though to a lesser extent for a period of about five to six months, after which the effects of green-manuring are hardly appreciable.
(2) The decomposition and nitrification are depenent on rainfall and temperature.
(3) The use of non-leguminous leafy material, *e.g.*, of wild sunflower gave as good results from the standpoint of nitrate formation, as many of the leguminous green manures.

A new series of field experiments were started early in December, 1926, at the Experiment Station, Peradeniya, in conjunction with the Manager, their object being to compare the results of ploughing into the soil green manures grown *in situ* with those, as in the previous series of experiments, in which the green manures were grown elsewhere. Owing to dry weather setting in after planting, there has been difficulty in establishing the plots. The experiments are to be continued for a period of two years.

Two series of laboratory experiments on the nitrification of nitrogenous organic and mineral fertilizers were completed during the year, and the results prepared for publication in the Yearbook for 1927. The chief conclusions arrived at were :—

(1) Provided an adequate supply of moisture was available, the less nitrogenous organic manures reached their period of maximum nitrification more rapidly than the more nitrogenous ones ; but the amounts of nitrate present in the soil at any particular time were generally greater when the latter were used.
(2) In the second series of exeriments where the manures were applied at the rate of 5 cwt. per acre, maximum nitrification was reached between the 4th and 8th weeks.

A field series of organic manure experiments were started in December at the Experiment Station, but it is too soon for any observations to be made on them.

Thanks to the generosity of the Chilean Nitrate Committee, it has been possible to continue on a fairly extensive scale the experiments that were started on the leaching of fertilizers from Ceylon soils. The experiments are to be continued over a period of two years, but useful indications can be expected about the end of this year.

A simple pot-house experiment was started early in October to ascertain the relative amounts of nitrogen assimilated by *Vigna oligosperma* from the atmosphere and the soil (if any). The results will be published when available.

A series of experiments to study "nitrification" during the year was started at the end of October on the block of tea behind the laboratory. The object of these experiments was to ascertain how the nitrate present in the soil at any particular period varies (1) with cultivation, (2) the application of lime, (3) the presence of a growing crop of tea. There is only sufficient space on this area for one set of plots and the results so far obtained are not definite enough for any conclusions to be drawn from them.

Miscellaneous.

Two papers were read by the Chemist at the Agricultural Conference held in March. They were entitled. "The Decomposition of Green and Organic Manures under Tropical Conditions" and "The Leaching of Fertilizers from Ceylon Soils."

Publications.

Bulletin No. 75.—A preliminary Investigation on the Absorption of Fertilizers by Ceylon Soils—by A. W. R. Joachim.

The following papers on original work done in addition to those read at the Conference appeared in the Tropical Agriculturist :—

(1) A further Report on the Decomposition of Green Manures under Peradeniya Conditions.
(2) The Analyses of some Green Manures.

A. W. R. JOACHIM,
Agricultural Chemist.

Peradeniya, January 12, 1927.

V.—REPORT OF THE DIVISION OF ECONOMIC BOTANY.

General.

The area of the paddy station at Peradeniya is very small and proposals have now been made to acquire an additional 13 acres on which to carry out cultural and manurial experiments and to extend selection work and the multiplication of tested pure-lines.

I was on circuit for 58 days during the year and visited Anuradhapura, Jaffna, and most of the Paddy Seed Stations. Mr. Wickramasekera was on circuit for 69 days and Mr. Abeysundera for 62 days. The clerical staff has remained unchanged during the year.

Paddy Seed Stations.

The chief progress of the year was the opening of new Paddy Seed Stations, of which 19 are now engaged in carrying out tests of the pure-line paddies previously isolated. The average size of the seed station is five acres. Owing to the wide range of climatic conditions in Ceylon the principle of seed selection *in situ* is being followed as far as possible and the Paddy Seed Stations are being used for the isolation and preliminary testing of pure-lines as well as for the field testing of the main lines already

isolated and for the multiplication of successful lines. These Paddy Seed Stations are directly under the charge of the divisional agricultural officers in whose division they are and the work of seed selection at these stations is carried out in co-operation with the Divisional Agricultural Officers and their agricultural assistants directly in charge of the stations. The following table showing the Paddy Seed Stations in the different divisions is printed for reference :—

Division, &c.	Paddy Seed Station.
Northern ..	.. Paranthan
	Uliyankulam
	Kanniyai
Central ..	.. Dedigama
	Kotmale
	Katugastota
	Nalanda
North-Central ..	.. Madampe
	Kurunegala
Eastern ..	.. Ilupadichchenai
	Sengapaddai
Western ..	.. Belunmahara
Uva ..	.. Badulla
Sabaragamuwa	.. Batugedera
	Godakawela
Southern ..	.. Akmimana
	Borala
	Bandaragama
	Batapola

A full account of the Paddy Seed Stations has been prepared for the Department's 1927 Yearbook.

DEPARTMENTAL AND OUTSIDE TRIALS OF PURE-LINE PADDIES.

As a result of trials in different localities 438 bushels of pure-line paddy have been sown this 1926–27 maha season. These figures have been obtained from the returns made by Divisional Agricultural Officers.

Maha Season, 1925-26.—Trials were carried out at Katugastota (B-11 and B-12), Kegalla (B-27), Kurunegala (F-25, W-15, G-1, and four other selections), Madampe (P-10, G-1, a-8, and seven other selections), Ratnapura (R-11), and Badulla. These were conducted by district officers and the selections were in all cases superior to the local varieties. Trials in the Southern Province were again unsuccessful. Gate Mudaliyar A. E. Rajapakse very kindly carried out trials at Negombo, in which a *podiwi* selection a-8 was markedly successful, yielding 31 per cent. more than the local paddy. Gate Mudaliyar Rajapakse has described these trials in the *Tropical Agriculturist*, Vol. LXVII., No. 3.

Yala Season, 1926.—Trials were conducted at Badulla, Katugastota, Kurunegala, Mannar, Paranthan, and at Thiyagoda, Akmimana, and Kobowella in the Southern Division. At Mannar Ho-6 and at Paranthan Ib-14 have given distinct promise of being superior to the local paddies. At Anuradhapura an acre of Mb-14 has yielded 42 bushels with the comparatively high per cent. of grain to husk of seventy-seven. The trials in the Southern Division indicate that Da-27 and De-7 may be successful there, but trouble is still experienced with the age of maturing of selections sent to this division. De-7 has also proved successful at Ambalawa, where Mr. R. P. Gaddum kindly conducted trials.

Maha Season, 1926-27.—Departmental trials have been laid down at the 19 Paddy Seed Stations as described in the Yearbook of the Department of Agriculture for 1927.

PADDY SELECTION WORK.

Work in the Economic Botanist's areas at Peradeniya and Anuradhapura consisted of—

(i.) Maintaining the main series selections and supplying seed of these to the Manager Experiment Station, Anuradhapura, for multiplication.
(ii.) Preliminary testing and examination of new selections.
(iii.) Making new selections.

A new system of records was inaugurated and hulling tests of paddy and bagging of individual plants were added to the routine work. In spite of having discarded over 750 selections during the year more than 1,000 still remain on the record books. This is still too many and will be further reduced after preliminary tests have been conducted. The following is a statement of the selections in the division :—

Paddy Selections recorded in the Division.

Nature of Selection.	Grown at— Peradeniya.	Anuradhapura.	Transferred to Paddy Seed Stations.
Main series—			
Maha	9	32	—
Yala	12	35	—
New selections—			
Maha	—	34	512
Yala	16	—	90
Selections made in 1926 —			
Maha	100	—	40
Yala	—	160	—

Varieties from which selections have been made this year are *dewaredderi*, Florida, *sinnanayam*, *maha suduwi*, *ratkarayal*, *muppangan*, Black, *illankalayan*, *sawer kuran*, *kandimurungan*, *hetadawi*, *perillavel*, and *murungakai*.

OTHER WORK WITH PADDY.

A study of a technique for preliminary testing of selections was made at Peradeniya during the year. The results were published separately (see below). The following cultural and manurial experiments were laid down : to test the efficacy of bone meal for paddy, to determine the effect of green manures on paddy in Ceylon, a broadcasting versus transplanting experiment and an experiment to determine a general optimum seed rate. In addition, five different green manures are being tried at Peradeniya where also the question of trapping land crabs is being looked into. At Peradeniya, early submergence of broadcasted fields has materially reduced the weed growth—the common weed

Fimbristylis miliacea being almost absent in such fields. Burmese harrows were introduced and used at Peradeniya and Anurahapura and were found both extremely efficient and economical. These harrows were also sent to the different Paddy Seed Stations. Where the conservatism of the cultivator has been overcome these harrows are popular.

Vegetable Work.

Owing to pressure of work and insufficient experimental plots at Peradeniya the 39 chillie selections have been transferred to the Experiment Station, Jaffna. At Peradeniya the pure-line selections of bandakka (*Hibiscus esculentus*) have now reached the stage of comparative trials. Out of the 54 selections grown in the south-west season twenty, were selected for comparative trial and were laid down in replicated plots in the north-east season. Twenty-four selections of *Vigna sinensis* and fourteen selections of *Vigna cylindrica* were grown for multiplication prior to yield tests in 1927.

At Anuradhapura the kurakkan (*Eleusine coracana*) selections, transferred from Peradeniya, failed. In the north-east season fifty new selections of the local variety were laid down.

Publications.

Wickramasekera, G. V.—Possibilities of Improving the Yields of Paddy in Ceylon by the Use of Pure-line Selected Seed. *Tropical Agriculturist*, LXVI., 4–5, 1926.

Lord, L.—The Preliminary Testing of Pure-line Selections of Rice. *Tropical Agriculturist*, LXVII., 5, 1926.

Lord, L.—The Efficiency of Certain Nitrogenous Manures for Paddy. *Tropical Agriculturist*, LXVII., 5, 1926.

Lord, L.—Paddy Seed Stations. *Yearbook of the Department of Agriculture, 1927.*

L. LORD,
Peradeniya, January 17, 1927. Economic Botanist.

VI.—REPORT OF THE CENTRAL EXPERIMENT STATION, PERADENIYA.

Tea.

In the 16 plots in which *Indigofera endecaphylla* was planted in the north-east monsoon of 1925 the cover crop has made, in most cases, excellent growth. The tea is looking healthy and, up to the end of 1926, the indications were that the presence of the *Indigofera* had exerted no marked influence on yield.

Separate yields of leaf were recorded from each of the 78 plots of 40 bushes each which are destined for manurial experiments after two years' initial yields have been recorded.

In the Hillside tea *Indigofera endecaphylla* has been planted in alternate sets of 6 rows, the intervening sets of 6 rows being clean weeded. *Gliricidia* has also been planted throughout this area to take the place of the existing dadaps.

Vacancies in all the Manipuri plots were supplied by transplanting small nursery plants with a transplanting tool during the south-west monsoon. In the matter of the survival of supplies the season was the most successful on record.

In the half acre plot the pruning was done in the early part of January, 1926, instead of in October-November, 1925. This pruning was followed by a period of very dry weather. Eventually 400 bushes died in this plot, as well as a number of dadaps. *Rhizoctonia bataticola* was found on most of the dead bushes uprooted from this plot.

Rubber.

The following experiments were continued :—

(1) Old Manurial Experiment.
(2) Avenue Rubber Manurial Experiment.
(3) Two experiments for the comparison of alternate day tapping with tapping every 3 days.
(4) Comparison of V cut with single cut.
(5) Comparison of tapping on alternate days throughout the year, and daily in alternate months.
(6) The recording of individual yields of dry rubber in plots 11-15 was continued. Bulletin No. 77, by Mr. R. A. Taylor of the Rubber Research Scheme, was published during the year, and contains the latest conclusions arrived at from the data afforded by these records.

The following new experiments were started in April :—

(1) Comparison of left and right cuts.
(2) Comparison of changing over once a year, once in six months, and no change over.
(3) An experiment on the exhaustion theory of Brown Bast. This experiment is designed to determine whether the withdrawal of the latex or the mere excision of bark is the predominant factor in inducing Brown Bast.

No further enperiments can now be initiated until extended and improved facilities for the curing of rubber are provided.

An area of land 3⅓ acres in extent was partially cleared for the planting of budded rubber during 1927.

41,770 seed from the best yielding trees in the blocks which individual yields are being recorded were sold to the public at Rs. 10 per 1,000. 634,850 unselected seed was sold, or passed to the Curator, Royal Botanic Gardens, for sale at Rs. 5 per 1,000. In addition, 3,016 selected seed from the best trees was sent to the Rubber Research Scheme for planting.

Seed from high yielding trees on the station, from Henaratgoda Gardens, and from two estates was laid down in nurseries to provide stocks for budding in 1927.

CACAO.

A manurial experiment has been designed to commence at the beginning of the cacao year 1927–28. A comparison is to be made between the yields of the plots selected without manuring during the years 1923–24 to 1926–27 compared with the plots selected as control plots, and the yields of the same plots with manuring during the years 1927–28 to 1930–1931 compared with the same control plots.

Individual yields of pods were again recorded from 133 trees in the "B" cacao area. Notes were also made as to the size, and form of the pods of the trees bearing the largest number of pods.

COFFEE.

The demand for seed and plants of the Robusta types continued.

Trials were made during the year to obtain information, or check existing information, on the following points with the different coffees grown on the station :—

(1) The number of berries per pound of fresh berries.
(2) The outturn of parchment coffee from fresh berries.
(3) The outturn of sun-dried coffee from fresh berries.
(4) The length of time unpulped berries will retain their germinating power.
(5) The length of time parchment coffee will retain its germinating power.

The results of these experiments were published in the Yearbook of the Department.

The yields obtained from Jackson's Hybrid and Kent's Arabica coffee, and the general condition of the bushes of these coffees, do not encourage extension in their cultivation.

Eighteen plots of four bushes, each were laid out in October, 1925, for recording seperate yields with the object of starting a manurial experiment. After a year's records had been kept, however, it appeared that the differences in initial plot yields were too great for any reliance to be placed on a manurial experiment. This was probably due to the small size of the plots. There is no area of coffee in bearing on the station which will furnish a sufficient number of larger plots.

COCONUTS.

The nineteen varieties of coconuts planted in the fodder grass plots are making fair growth.

A number of old palms have been cut out to make room for new lines, the proposed new cattle shed, &c. The number of nuts harvested per palm was 24 against 26·8 in 1925, and 26·7 in 1924.

FIBRES.

In the plot of sisal in the economic collection planted from bulbils grown in a nursery, the plants started poling four years after planting. Five years after planting all plants had poled. In some of the plants the poles were cut off as soon as they appeared, and the value of this procedure in saving for harvesting leaves which would have otherwise rapidly died off was demonstrated.

One hundred and twenty leaves of Columbian Pita grown in the fruit plots were cut for the extraction of fibre. The leaves were retted for three weeks, decomposition being extremely slow. The average length of the leaves was 5 ft. 5 in. An outturn of only 1·2 per cent. of dried fibre was obtained.

FODDER GRASSES.

The results of the trials for 1925–26 were laid before the Estates Products Committee of the Board of Agriculture in September. Owing to the variation found in the nutrient value of the grasses in different analyses it was decided that the publication of such analyses should be suspended until such time as a long series of analyses of each grass over different seasons was available. The grasses dealt with in the 1925-26 report were the same as in 1924–25. Acre plots of the following grasses have been laid down and their yields will be included in the 1926–27 report :—Buffalo grass, *Setaria sulcata ; Paspalum Commersonii ;* Efwatakala grass, *Melinis minutiflora.* In addition, two other grasses, Merker's grass, *Pennisetum merkerii,* and Guatemala grass, *Tripsacum laxum,* were introduced from the Phillipines. The latter grass appears very promising, and is being multiplied for future trial.

ADLAY.

Coix Lachryma—jobi.

Two white seeded varieties have been selected from those on trial for retention and future supply of seed. These are Lamao White and Bakidnon. Good crops have been obtained from both these varieties during the year, amounting to 36 bushels or 1,456 lb. per acre in the former, and 30 bushels or 1,012 lb. per acre in the case of the latter.

Seed has again been distributed chiefly through the Divisional Agricultural Officer, Central Division, but the grain does not appear as yet to have attained any great popularity.

TUBERS.

Trials of a number of varieties of sweet potatoes and cassavas were continued. Another year will be required to bring these trials to a conclusion, after which a number of selected varieties of each found worthy of retention will be kept for stock purposes.

GREEN MANURES AND COVER CROPS.

The interest commented on in 1925 was fully maintained. Seed and cuttings to the value of Rs. 3,053·27 were sold or supplied to other divisions of the Department. In 1925 seeds and cuttings to the value of Rs. 2,433·47 were sold.

A special feature this year was the demand for *Indigofera endecaphylla* cuttings for planting in tea. 99,000 cuttings of this plant were sold, and 17 lb. of seed in addition to a considerable amount of seed which was distributed by the Central Seed Store.

26,950 cuttings of *Gliricidia maculata* were sold during the year.

An experiment started in November, 1925, by the Agricultural Chemist on the nitrate formation resulting from the burying in the soil of green loppings from different leguminous and other plants brought in from the outside was brought to a conclusion during the year. The results were submitted by the Agricultural Chemist to the Estates Products Committee of the Board of Agriculture.

A similar but more extended experiment in which various leguminous plants are grown on the land itself was started in November, 1926. The plants used are *Erythrina lithosperma, Gliricidia maculata, Tephrosia candida, Crotalaria anagyroides, Vigna oligosperma,* and *Indigofera endecaphylla.* Planting was unfortunately followed by a long drought necessitating replanting of the bush plants and creepers, and a fresh start at a later date.

Experiments with Manures.

An experiment to determine the relative availability of the nitrogen in various nitrogenous manures was started by the Agricultural Chemist in 40 small sub-plots of plot 25 in November.

The Economic Collection.

The following additions were made to the collection :—

Rubbers : *Mascarenhasia elastica.*
Citrus Fruits : *Citrus buxifolia.*
Drugs : *Cinchona Ledgeriana* and *Tamarindus indica.*
Tans : *Acacia Catechu.*

The weeding and upkeep of this area has again absorbed a great deal of labour.
Green manures have been grown in all vacant spaces for seed production.

Buildings.

No new buildings were erected by the Public Works Department. Improvements were effected to some existing buildings. Most of the walls of the Assistant Manager's bungalow, a mud and cadjan structure, were rebuilt by Experiment Station labour.

Roads.

Two new stretches of metal road were made during the year. The repair of the roads first made must now precede further new construction, and a quantity of metal was broken for this purpose.

Labour.

The force has been slightly increased but is still inadequate for the present needs of the station. Further village labour cannot be obtained, and the increase of the labour force must consequently await the building of new lines.

Visits to Estates.

The Manager visited the following estates during the year :—Kurugama, Peradeniya; Lomont Group, Kalutara; Poilakanda, Kadugannawa; Endane, Kahawatta; Haloya, Peradeniya.

In addition, the Assistant Manager, Mr. T. B. Ranaraja, visited four estates for the purpose of demonstrating the budding of rubber.

General.

One hundred and thirty-eight visitors signed the book during the year.

The total rainfall for the year was 85·74 inches being 4·59 inches below the average.

The rainfall during the south-west monsoon, though light, was well distributed, and gave favourable conditions for planting.

The north-east monsoon was a partial failure. Practically no rain fell between November 22 and December 21, and these dry conditions greatly interfered with normal works.

The revenue for the financial year 1925–26 was Rs. 29,731·13. The expenditure for the same period, exclusive of monthly paid salaries, was Rs. 33,091·59.

T. H. HOLLAND,
Manager, Experiment Station, Peradeniya.

Peradeniya, January 5, 1927.

VII.—REPORTS OF DIVISIONAL AGRICULTURAL OFFICERS AND OF AGRICULTURAL INSTRUCTORS.

CENTRAL.

New Experimental Stations have been opened at Dedigama for paddy trials in 5 acres, Kotmale 2½ acres, Katugastota extended to 5 acres, Nalanda (area for paddy) now being extended by 2 acres, and sites selected for general experimental stations at Kegalla 37 acres, and Dambulla 25 acres. The minor Experimental Station at Kumbalgamuwa has been converted into a supply nursery. The four District Agricultural Committees are being revived, and three District Agricultural Associations have been started in the Uda Palata Division. New irrigation works have been recommended by this division, and some of them have been put in hand. A start has been made with the four Vernacular Agricultural Instructors to give special lectures in Agriculture at selected schools in the Central Division. A beginning has been made with cotton-growing in the Walapane division. New markets have been opened and the usual work in connection with competitions, small shows, manurial trials, school garden work, ploughing demonstrations, and seed selections have been attended to. The Farm School has received special attention and lectures have been drawn up to cover the whole course of two years. A new prospectus is in the press. A three days' Agricultural Show was held at Kandy in August. I attribute the success of the Show to the whole-hearted co-operation of the Agricultural Instructors and the Headmen. The amount of work necessarily involved on the staff of this division was particularly heavy. Exhibits came from all over the Island and the attendance was excellent.

KANDY DISTRICT.

District Agricultural Committee.—Number of meetings held one. The following subjects were discussed :—(*a*) Paddy station, Katugastota ; (*b*) sunn-hemp plots ; (*c*) competitions for maha, 1926 ; (*d*) Kandy Show ; (*e*) awards of the financial year ; (*f*) Inigala-ela.

Paddy.—The establishment of a paddy station at Katugastota was the most important item of work during the year.

During the maha, 1926–27, tests are being made on an area of about five acres. The following types of pure-line paddies have been sown :—B 12A, B 12K, B 11A, B 11K, B 20, I 17, and local Hatial. Multiplication plots of B 11A, B 12A, B 12K, and B 20 in comparison with local Hatial and Hondarawala have also been established.

The growth so far of all varieties has been satisfactory. In some of the plots in the replicas there are patches of unsatisfactory growth of plants and a certain amount of failures due to soil irregularities.

The trials that are being conducted to test spacing or planting distances should give valuable results. The growth in these plots is exceptionally good so far, and the tillering excellent.

The uncultivated portions of the high land have again been sown with sunn-hemp and a number of dadap stumps has also been planted.

The cultivation of B 12 and B 11 types of paddies have been taken up by the villagers more extensively than in the previous year.

During yala HK 13 was tried on a small scale. HK 15 from seed raised locally during the previous year was cultivated by six growers. The results were satisfactory. The use of green in paddy fields is gradually extending through the means of the Katugastota Paddy Station. The growing of green manures in stations, especially *Crotalaria Juncea* (sunn-hemp) has been successful and was greatly admired by visitors. Applications for seed for sowing during yala, 1927, have already been received. Systematic transplanting of paddy, with a view of effecting a saving in seed, has been encouraged and has been adopted very extensively.

Competitions.—Competitions in growing pure-line paddies were organized for Yatinuwara and Harispattu. In all 36 competitors entered and the results were satisfactory. The following types are grown HK 15, B 12, B 11, C 17, and I 32. Samples of paddies grown were exhibited at the Katugastota Village Show and the Kandy Show. Value of awards made were Rs. 130.

Paddy Competition (ordinary) : One competition, number of entries 11, prize awarded Rs. 60.

Vegetable Garden Competition : Two competitions, number of entries 76, prize awarded Rs. 120.

Police Garden Competition : One competition, all police stations, prize awarded Rs. 50.

Shows.—Two small Village Shows were held, one at Katugastota and the other at Alawatugoda. The exhibits at Katugastota were very satisfactory. Rain somewhat interfered with the one held at Alawatugoda. Mamoties were given as prizes and were greatly appreciated. The Kandy Show was also held during the year. It is supposed to have been easily the most successful and the biggest Agricultural Show held in the Island. As Joint Honorary Secretary, a very considerable amount of my time was taken up entirely with Show work. The correspondence was especially heavy. All classes of exhibits were very well represented.

Food Crops other than Paddy.—The Kandy District is a very important vegetable-growing area. A considerable portion of the vegetables that go to the Kandy market is raised in this area, and throughout the year much interest was taken in the question of increased cultivation of vegetables, currystuffs, and other food crops. Beans were extensively cultivated. The cultivation of yams, manioc, onion, garlic, ginger, turmeric, and chillies was taken up more largely. The plantain disease has apparently disappeared, and replanting of plantain suckers have been carried out in all localities.

Paddy Manurial Trials.—Two manurial trials are being made at Elpitiya and Kahatapitiya respectively. The manures are ephos phosphate, bone meal and green manures. The experiments are being made on plots not manured last year, and from which the yields were obtained in order to note the fertility curve.

Irrigation.—Several village irrigation schemes were inspected and recommended for attention during the year. The Agricultural Associations formed in Uda Palata have already made recommendations in connection with such works in their respective areas.

District Agricultural Associations.—A new development in this district is the institution of the above associations. Three have already been started, and it is hoped to start another one very shortly. The aims of these associations are (*a*) discussion of agricultural questions affecting the interest of members, and (*b*) the increase of agricultural knowledge among members.

Village Meetings.—Educational agricultural village meetings were held throughout the district. At these meetings the following questions were discussed :—(1) Larger production of good crops locally, (2) cultivation of pure-line paddy, (3) seed selection in paddy cultivation, (4) green manuring of paddy, (5) pests of paddy, (6) plantain disease, (7) coconut cultivation, (8) cultivation of currystuffs, (9) uses and objects of competitions and shows, and (10) irrigation schemes. These meetings organized and regularly held since the food crisis in 1919 have been productive of good results. They have contributed to encourage the use of selected seed, green manuring of paddy, cultivation of food crops and that of currystuffs in the localities. They have been also made the medium of giving up-to-date information on agricultural questions.

Vernacular Agricultural Education.—A vernacular agricultural teacher commenced work in this district on October 1 and devotes his entire time to the teaching of Nature Study in the following eight schools :—Nugawela, Kobbekaduwa, Haloluwa, Gunnepane, Idamegama, Muruthalawa, Mahagama, and Paranagama.

MATALE DISTRICT.

District Agricultural Committee.—Number of meetings held two, and the following matters were discussed :—(*a*) Cacao and rubber licences outside Matale town, (*b*) Matale Show, (*c*) proposed paddy station at Inamaluwa, (*d*) improved conditions of tenancy, (*e*) results of competitions, 1925–26, (*f*) competitions and shows, 1926–27, (*g*) Dambulla Experiment Station, (*h*) work of the Vernacular Agricultural Instructor, (*i*) Nikawella Amuna, (*j*) amount of cotton purchased.

Nalanda Paddy Seed Station.—Tests are being made with the following varieties:—Lot No. 1, 1 Cp/1 to 20; lot No. 2, 2447/1 to 20; lot No. 3, Hn. 15, Ht. 18, Hn. 10, G 19 Nalanda, and G 19 Anuradhapura.

Work is now in hand to increase the area under paddy on this station by another two acres, and asweddumizing has already been started.

Efforts have also been made to get a station in Matale East or Matale South, but up to the present we have not succeeded in getting a block of five acres belonging to one owner. It is also hoped to get another station in the Inamaluwa district next year.

Shows and Competitions.—A Sunday Market Show was held at Palapatwela in August and it is estimated that over 1,000 people attended it. The vegetable section was especially good and competition keen. A lantern lecture was given in the evening after the Show.

Paddy Competitions.—There were six competitions and the total number of entries was 190. Value of prizes Rs. 360.

Vegetable Gardens Competitions.—There were four competitions and the number of entries was 114. Value of prizes Rs. 260.

Special Crops.—The area under tobacco has considerably increased during the year, and in consequence vegetable cultivation has decreased. A small quantity of about 50 cwt. of cotton was grown in the Dambulla area and sold by the Department to the Weaving and Spinning Mills, Wellawatta, on behalf of the villagers. Adlay variety No. 2 yielded 10 bushels per acre, and adlay lamas 19 bushels per acre at the Nalanda Station.

Vernacular Agricultural Instructor.—A Vernacular Agricultural Instructor was appointed to the Matale District in October, and will devote his time in lecturing on Nature Study at the following schools:—Tenne, Ovilikanda, Dullewa, Palapatwela, Dombewela, Weragama, Kaikawela, and Nagolla.

Kegalla District.

District Agricultural Committee.—Number of meetings held two and the following matters were discussed:—(1) Competitions, &c., for 1926–27, (2) registration of 12 school gardens, (3) experiments at Rambukkana plantain plots, (4) Kandy Show, (5) results of competitions, (6) Paddy Station, Dedigama, (7) improved conditions of tenancy, (8) work of the Vernacular Agricultural Instructor.

Paddy.—A 5-acre Paddy Experiment Station was opened at Dedigama this year and trials of pure strains of paddy were laid out on the lines of field plots tests and general tests. The following lines of paddy are being tried in the field plot tests:—Local G 19, I 17, E 24, B 11.

Of the above varieties B 11 and I 17 are doing the best.

The following pure-lines of paddy with a local variety are being tried as observation tests:—E 24, B 12, G 19, I 17, B 11, local.

In addition to these pure-line paddy trials a set of paddy transplanted demonstration plots have been laid out in this station. The plot in which these demonstrations have been laid out was originally sown with green manure which failed as a result of excessive rain and the plot getting water logged. The variety of paddy grown in this demonstration is the local variety known as mawi, and plants thinned out from neighbouring fields were used. The demonstration has been laid out in the following lines:—1 plot transplanted to a distance of 14 inches, and the other to a distance of 12 inches, and the third to a distance of 9 inches; 1 plot transplanted 9 inches apart treated with ash; 1 plot transplanted 9 inches apart treated with bone meal; 1 plot transplanted 9 inches apart treated with green manure; 1 plot transplanted 9 inches apart treated as control.

The whole set of plots are thriving satisfactorily. All the plants in the different plots have tillered out well and are looking quite healthy, making a marked difference to the neighbouring village cultivations in colour, growth, and the number of tillers.

Paddy Manurial Trials.—Paddy manurial trials were laid out at Hingula with green and artificial manures during the last maha season; also a demonstration in transplanted paddy block was carried out at Palpotha. The artificial manures tried were bone meal and ephosphate. It is too early yet to be able to give any results.

Adlay Trials.—These trials were carried out at the following school gardens:—Kehelwatta, Hettimulla, Mawanella, Beddewela, Mawatagoda, Pinnawela, Aranayake, Hemmatagama, Ambepussa, Manikkawa, Kottapola boys' and girls'.

Of the above trials those at Pinnawela, Hettimulla, Kehelwatta, Aranayaka, Manikkawa, and Kottapola failed and are being re-tried. In the other cases where the trials were successful seed has been distributed amongst the children to be grown in their home gardens.

Indigenous Hedge Trials.—Of the different varieties selected for trial as hedges it is found that *Flueggea leucopyrus* (Katu pila), *Caryota urens* (Kitul), and *Phaseolus lunatus* (Heendambala) do the best in hedge form. Of these *Flueggea* (Katu pila) fills up the fastest. The other two varieties are hardier plants, but are of slow growth. Of the trials carried out in the above the two successful trials are to be seen at Ambepussa and Mawatagoda school gardens. A new trial hedge at Ambepussa, out of the seed collected from the katu pila hedge previously raised from cuttings, is also being made.

Plantain Disease Observation Plots, Rambukkana.—Subsequent to the results published on page 33 of the Yearbook of the Department of Agriculture for 1925, the dead stumps were dug up and the refuse collected and burnt. A series of experiments were then designed.

The upper portion of the plot was divided into 80 sections, each section being surrounded by a trench dug 2 feet deep and 1 foot wide. Soil sterilization was then carried out on 20 sections with Cheshunt mixture, 20 sections with lime, and 20 with Jeyes fluid. The remaining 20 sections were left untreated. The sections sterilized were scattered over the whole plot. Healthy suckers of Hondarawala were obtained from Kurunegala and planted on November 23, 24, 25, 1925, one month after sterilizing. The results on the last inspection, 11 months after planting, showed that with the exception of three plants, all the plants were healthy. The diseased plants are situated in the Jeyes fluid section (2), and the control section (1). It was found that on digging up the stools of the diseased plants in the Jeyes fluid plots that the roots had very little chance of growing, owing to the presence of rock, and it is quite probable that the plants did not die from the bunchy top disease.

The plant in the central plot was certainly a bunchy top victim. The lower portion of the plot was planted up at the same time with different varieties in untreated soil. The suckers in this case were planted in the same holes from which diseased stools had been uprooted at the previous trial. A census was taken on August 19, 1926, and with the exception of vel munthan, koppal, and pusmaka-theri, all the varieties were attached. The plants in these tests show that they are attacked at various stages. Aphis have been found on the diseased plants and sent to the Entomologist. The Mycologist also reports that roots examined by him have been affected by *Heterodera radicicola* and *Rhizoctonia bataticola.*

Ploughing Demonstration.—A ploughing demonstration was given at Dippitiya with the Meston, Molegoda, and Goiya ploughs which worked side by side with the village ploughs. All the ploughs were considered to be superior to the village ploughs.

Shows and Competitions.—Sunday Fairs were held at Morantota, Atale, Aranayaka, and Kegalla. The Market Shows organized were held at these centres and prizes were awarded. Of the above Fairs the best and the busiest are those held at Aranayaka and Morantota.

Paddy Competitions.—There were four competitions, number of entries 143, prizes awarded Rs. 200.

Vegetable Garden Competition.—One competition, number of entries 111, prizes awarded Rs. 50.

Jak Cultivation Competition.—Two competitions, number of entries 59, prizes awarded Rs. 90.

Minor Irrigation Works.—Various silted channels and elas have been reported upon from time to time.

District Experiment Station.—A block of 37 acres at Wagolla Mukalana has been selected for a general experiment station.

Vernacular Agricultural Instructor.—A Vernacular Instructor was appointed to Kegalla District in October, and he will devote his time in teaching agriculture at the following eight schools:—Hettimulla, Kehelwatta, Ballapana, Kottapola, Molegoda, Wakirigala, Pitiyagama, and Pinnawela.

NUWARA ELIYA DISTRICT.

District Agricultural Committee.—Number of meetings held during 1926 was three, and the following matters were discussed :—(1) Government Circular No. 65, (2) Shows and competitions for 1925–26, (3) co-operation between the Agricultural Instructors and the Headmen, (4) awards for paddy competitions, (5) discussion on the cultivation of cotton and chillies, (6) Kotmale Paddy Station, (7) work of the Vernacular Agricultural Instructor, (8) improved conditions of tenancy, (9) cotton nursery at Kumbalgamuwa, (10) agricultural shows.

Kotmale Paddy Seed Station.—The following five varieties are being tried this maha with six replicas of each :—B 11, W 15, G 9, P 10, and L 20, and the local mawi is sown as control. Of the pure-lines P 10 is promising.

Manurial Trials.—Paddy manurial trials are also being made in this district with bone meal, animal meal, and fish guano. The goiyas now manure their fields with either green leaves or farm-yard manure more regularly and also pay more attention to ploughing. Transplanting of paddy is now generally done where labour is available, but it is extremely difficult to persuade cultivators to appreciate the value of seed selection.

Cotton.—As a result of the experiments made at Kumbalgamuwa with cotton, a quantity of about 80 cwt. of seed cotton were despatched to the Spinning and Weaving Mills, Wellawatta, from the Walapane Division. This was grown at Teripeha and Bolagandawela in Meda palata korale.

Competitions and Shows.—A small Village Show was held at Sangilipalama in September. Competition for prizes was keen and was also well attended. Various exhibits were sent by the Agricultural Department. Five competitions were held in this district, viz., paddy, vegetable, and plantain gardens. The number of entries was 103. The value of the prizes distributed amounted to Rs. 225, and three sovereigns were presented by Mr. Plumridge.

Sunday Market.—A Sunday market was opened at Suriyagahapatana near Uda Pussellawa and is becoming well established, the amount of business done being very satisfactory.

Supply Nursery.—This nursery has been started at Kumbalgamuwa and so far an acre has been opened up and a number of beds planted with several economic plants and seeds. Also 1,000 coconuts are being germinated and 100 plantain suckers have been planted with a view of supplying these plants later on.

Irrigation Work.—Two ancient tanks which had been abandoned known as Walahindawewa and Ratiriyanepota are to be restored in the course of 1927. The question of restoring these two tanks was taken up after an inspection and recommendation by the Director of Agriculture in 1925.

Vernacular Agricultural Education.—A vernacular agricultural teacher commenced work in this division on October 1, and will devote his time to the teaching of nature study in the following eight schools :—Morape, Kadadora, Tispane, Wattaddora, Hedunawa, Udagama, Sangilipalama, and Punduluoya.

FARM SCHOOL, PERADENIYA

Students.—At the end of January, 1926, it became necessary for the Director to dismiss all the students, except two. Ten students, however, were re-admitted. The final examination of 7 students and 12 vernacular teachers was held in March. New classes comprised of 16 first-year students and 12 vernacular teachers were formed in May, while three second-year students will complete their course in March, 1927. At the end of the year the numbers present are :—Second-year students 3, first-year students 12, teachers 12.

The four Vernacular Agricultural Instructors who were working in the Kegalla District were brought to the school for a special course of training, on the completion of which in September, they were appointed as itinerating agricultural teachers in selected vernacular schools.

Mr. J. C. Drieberg attended the conference of vernacular teachers conducted by the Education Department at the end of March, and read a paper on " The Rural School " which appeared in the Tropical Agriculturist for April.

On February 8 His Excellency the Governor paid an official visit to the school, on June 21 the Hon. Mr. D. B. Jayatilleke and the Hon. Mr. D. S. Senanayake visited the school and closely examined the curriculum. At the conclusion of the visit they expressed their satisfaction with the work that is being done here.

On July 10 a demonstration on the production of clean milk was conducted here for the benefit of the Sanitary Inspectors of the Central Province, 20 of whom were present in charge of the Medical Officer of Health.

From September 13 to 20 a special vacation class for vernacular teachers was held at the school. Twenty-eight teachers were sent by the Department of Education, and they resided in the school hostel. On the last day the Acting Director of Education examined the work that had been done during the week, and addressed the teachers before they left.

The hostel and class rooms have been restocked with new furniture which was obtained during the year. Additional apparatus such as cream separator and a butter churn for the dairy and general requirements for the chemical laboratory were obtained. Students are now able to do satisfactory work in the analysis of milk and the elementary analysis of soils. At the commencement of the year a boiler and sterilizing apparatus, constructed by the Government Factory, were fitted up at the milk room. All dairy utensils and milk bottles are now systematically sterilized daily before being used, and consequently the keeping quality of the milk is much improved. At the beginning of the year there were one stud bull, seven cows, and seven calves brought forward from the previous year. During the current year the losses were one cow, after an operation, and two calves. Two calves were sold and three sent to the Jaffna Farm School. Seven calves were born in 1926. The stock has been increased by importation from Karachchi of one stud, four cows, and three calves.

The sale of milk has been regular in the locality. During the year the total quantity of milk sold was 7,660½ pints at the rate of 20 cents a pint.

The curriculum of the school has been very carefully revised. Headings of lectures to be given, practical demonstrations and work to be done by the students have been drawn up to cover the whole 2 years' course of instruction. A new prospectus has also been prepared.

School Garden and Home Garden Work.

Registration.—The number of school gardens registered up to the closing of the year was as follows :—Government schools 162, grant-in-aid 31—193 schools in all ; against 147 Government schools and 25 grant-in-aid schools the previous year.

The following Government schools were registered during the current year :—

The names of the schools are—

Kandy District.—Dedunupitiya *m*, Dolua *b*, Talawinna *b*, Pallegaladebokka *m*.

Matale District.—Lenawa *b*, Dandubendiruppe *b*, Palapatwela *g*, Imbulpitiya *g*, Mahalakotuwa *b*.

Nuwara Eliya District.—Illuktenne *m*, Arukwatte *b*, Kurupanawela *m*.

Kegalla District.—Manikkawa *b*, Rahala *m*, Kehelpannala *m*, Daigala *b*, Pannilla *b*, Kinivita *m*, Pohorambe *g*.

Implements to the value of Rs. 1,373·11 were supplied to schools during the year, and the following contributions were received from Educational Committees :—Kandy Rs. 100, Matale Rs. 200, Nuwara Eliya Rs. 150, and Kegalla Rs. 371·20.

Economic Sections.—It has been the endeavour from the inception of school gardens scheme to attach much importance to this section, and impress on the teachers and their assistants that greater attention should be paid to the growing of vegetables and other food crops as well as curry-stuffs, and such ènonomic crops as cotton, hemp, vanilla, pepper, &c. In this respect a large number of school gardens have done remarkably well, and special mention must be made of the schools in Harispattu, Uda and Pata Dumbara, Udu and Yatinuwara, Pata Hewaheta, North and South Matale, Kotmale (Nuwara Eliya District), Galboda, Kinigoda, Paranakuru, Beligal korales, and Pata Bulatgama.

Paddy cultivation is conducted on a small scale in many school gardens such as at Kg/Galapitamada, Kg/Molegode, Kg/Wahirigala, K /Maniangama, Kg/Bosella, Kg/Hatnagoda, K/Mahamedagama, K/Ulapane, K/Idemegama, K/Ancumbura, Mt/Lellambe, Mt/Naula, Mt/Pussella, Ne/Tispone, Ne/Wattadara. Where manuring, seed selection, and transplanting tests were carried out, they were of benefit and edification to the neighbouring cultivators. There is, however, room for development.

Fruits.—A fruit section is found in almost every school garden according to the space available, and considerable interest is taken by teachers in this line of work.

Good fruit sections are maintained at K/Nugawela, K/Mahamedagama, K/Walhagoda, K/Hindagala, K/Alawatugoda, K/Ancumbura, K/Halolua, K/Paranagama, K/Handessa, Mt/Tenne, Mt/Madipola, Mt/Pussella, Mt/Kuriwela, Ne/Morape, Ne/Pundaluoya, Ne/Tispone, Kg/Ambepusse, Kg/Beddewela, Kg/Mawatagoda, Kg/Hemmatagama, Kg/Deriyanagala, Kg/Rambukkana, Kg/Bosella, &c.

Ornamental Section.—The flower garden is a very attractive feature in many a school garden. These sections are neatly arranged. Among a large number of schools which have attractive flower gardens, the following may be mentioned :—Nugawela, Alawatugoda, Gunnepanne, Idemegama,

Kobbekaduwa, Mahamedagama, Halolua, Baranagama, Giraulla, Atabage, in the Kandy District; Kuriwela, Tenne, Dullewa, Pussella, Madipola, in the Matale District; Wattadara, Tispone, Pundaluoya, Sangilipalama, Morape, Hedunuwa, in the Nuwara Eliya District; Beddewela, Mawatagoda, Hemmatagama, Ambepussa, Getiyamulla, Galapitamada, Deranaigala, in the Kegalla District.

Fencing.—The question of fencing in most schools is in a very unsatisfactory condition. For want of fences many good gardens are damaged by cattle, and it is difficult to keep away cattle in good many places without a wire fence. Most villagers all over the country at the present time put up wire fences, and owing to the opening up of the country in all directions and the cutting down of forests, there is a real scarcity of fence sticks in many places. A circular was recently sent to all Central Province schools on the construction of hedges.

Schools Awaiting Registration.—A large number of gardens are awaiting registration for want of funds to supply the necessary implements. This has been specially so in the Kegalla District.

Awards.—Fifty-two prizes were made as awards to Government Vernacular School teachers to the value of Rs. 700. Twenty Government Vernacular School teachers who had passed through the S. T. A. were recommended for bonuses. Sixteen grant-in-aid schools were also recommended for bonuses.

F. BURNETT,
January 11, 1927. Divisional Agricultural Officer.

SOUTHERN DIVISION.

HAMBANTOTA DISTRICT COTTON PURCHASE SCHEME.

Season, 1925–26.

PROGRESS has been maintained during the third season, and crop results have been satisfactory. The total quantity of seed cotton purchased from an area of approximately 1,000 acres was—

	Cwt.	qr.	lb.
First grade	2,518	3	10
Second grade..	85	3	2

for which a sum of Rs. 55,225·42 was paid. This represents an increase over the previous season of 1,367 cwt. of cotton of a value of Rs. 29,390. The variety grown throughout was Cambodia from seed imported from Madras, and a price of Rs. 21·50 per cwt. delivered in Colombo was given. The same method of collection as in previous years was adopted.

Season, 1926–27.

Six tons of Cambodia seed (from the previous season's crop) were distributed at the beginning of September. Owing to the late arrival of the north-east monsoon rains late sowing has been general throughout the district. The germination of seed was most satisfactory. The total acreage sown has not exceeded 1,200 acres. The prospects, which were at first decidedly poor owing to failure of the rains in November and December, had much improved at the end of the year, and there is now a distinct probability that yields will exceed those obtained last season.

Local interest in the cultivation of cotton has been maintained.

EXPERIMENT STATIONS.

Major—The Cotton Experiment Station, Ambalantota—Season, 1925–26.

Cotton.—The cotton was grown on the same land as was cultivated during the previous four years.

The land was cleared of cotton stalks in August and ploughed in September by means of tractors.

The ploughing done was far from satisfactory.

The cotton seed was sown on October 26 to 29—there was good germination.

Weeding was done with great difficulty owing to excessive and persistent wet weather.

No manure was applied to the plots.

The rainfall which was exceptionally heavy and prolonged was as follows :—

	Inches.	Days.		Inches.	Days.
September ..	·52	2	January ..	8·62	5
October ..	7·61	14	February ..	—	—
November ..	6·46	15	March ..	·81	2
December ..	11·77	12			

Total 35·79 inches—50 days.

Against an average taken over the last four years as follows :—

	Inches.	Days.		Inches.	Days.
September ..	3·88	9	January ..	3·53	6
October ..	5·98	9	February ..	1·74	3
November ..	4·74	10	March ..	4·84	9
December ..	3·54	7			

Total 28·25 inches—53 days.

The cost per acre in comparison with the four previous years was as follows :—

Capital Expenditure per Acre.—

	1921–22.	1922–23.	1923–24.	1924–25.	1925–26.
	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.
(1) Clearing and burning ..	31 46	—	0 60	3 75	3 2
(2) Building cooly lines ..	2 97	—	—	—	—
(3) Rent for office and store	—	4 34	7 32	8 37	7 66
(4) Fencing ..	6 3	0 78	4 48	4 75	2 22
(5) Implements ..	9 83	—	2 95	0 99	0 63
(6) Bags ..	3 26	—	—	—	—
(7) Cost of cattle ..	—	—	—	1 5	0 76

Recurrig Expenditure per Acre—

(1) Preparation of land for sowing ..	24 28	31 8	31 61	36 80	20 59
(2) Cost of seed ..	1 0	—	—	—	1 0
(3) Weeding ..	21 30	16 64	49 85	18 2	40 67
(4) Manuring ..	—	5 65	5 55	11 38	—
(5) Pests and diseases ..	1 16	2 37	—	0 60	0 28
(6) Harvesting ..	16 30	13 5	3 89	2 23	5 22
(7) Cleaning cotton ..	2 8	0 78	—	—	—
(8) Transport ..	3 14	2 41	2 30	1 71	0 52
(9) Supervision ..	—	3 68	6 72	7 53	6 18
(10) Watching ..	—	3 23	3 35	3 29	3 22
(11) Sundries ..	1 77	1 89	2 5	1 91	1 74
	124 58	85 90	120 67	126 63	93 71

Results.—

The yields from the various plots were as follows :—

Plot No.	Extent. Acres.	Variety.	Yield Per Acre. Cwt. qr. lb.
1	5	Watts Long Staple	1 1 14
2	5	Durango American	1 2 22
3 and 4	10	Cambodia	Failed—no yield
5 and 6	10	Cambodia	1 3 14
7	5	Cambodia	3 0 3
8	5	Cambodia	5 2 27
10	5	Cambodia	6 3 27
11	4	Zululand Hybrid	Failed—no yield

Note.—There was a considerable loss of crop in all plots owing to abnormal shedding of bolls and young squares as a result of unusual and excessive rainfall in January.

The poor yielding plots were low lying and suffered most from defective drainage.

Plot No. 11 was not ploughed but only strip forked and failed because of the rank weed growth.

Rotation Crops.—These yielded insignificant results with the exception of chillies and adlay owing to delays in planting and also the difficulty in controlling weeds.

Results.

Extent. Acres.	Variety.	Yield Per Acre.
2	Chillies	102 lb. dry
¼	Adlay	12 bushels

Season, 1926–27.

The preparation of the land by means of tractor ploughs was carried out in April and May, advantage being taken of the light rains experienced at the time of year.

This new system has proved most advantageous—as it has facilitated thorough cultivation and control of weeds.

A total area of 75 acres has been put under crop as follows, and all crops are thriving well.

Cotton.

	Acres.		Acres.
Cambodia (local selection)	45	Durango (local selection)	5
Durango (imported)	5		

Rotation Crops.

	Acres.		Acres.
Chillies (local and Jaffna selections)	2	Adlay	½
Tomatos (local and imported)	2	Castor	1
Kurakkan (local and Jaffna selections)	2	Groundnuts	1
Hill paddy	1	Dhall	7½
Sorghum	1	Cow-peas and green gram	2

Minor—Cotton Rotation Stations, Bata-ata and Middeniya (Hambantota District).

Two Experiment Stations—each 25 acres in extent were opened in July—one at Bata-ata (near Ranna) and the other midway between Middeniya and Talawa.

The land belonging to each station has been laid out as follows :—

Five acres for buildings, pasture, and timber reserves.

Twenty acres for rotation of crops.

Cotton—10 Acres.	*Cereals*—10 Acres.
Cambodia.	Kurakkan.
Durango.	Hill paddy.
Durango (imported)	Maize.
	Sorghum.
	Adlay.
	Minor grains.
	Gingelly.

A full cropping programme is being carried out for the sowing season of 1926–27 and interesting results are expected.

Cotton Demonstration Plots (Hambantota District).

The Welipatanwila plot (2 acres) yielded a return of 5 cwt. 1 qr. of Cambodia seed cotton per acre. This plot has since been given up.

The Dabarella plot (2 acres) yielded a return of 3 cwt. of Cambodia seed cotton per acre.

This plot has been retained for further trials—this season with leguminous crops.

Batapola (Galle District).

Trials with pineapples, citrus—including lime, orange, and grape fruit, kapok, rozelle (for fibre), papaw (for papaine), cinnamon, groundnut, and vegetables, and also green manuring and cover crops are being continued.

A report on the results of investigations with pineapple cultivation has been issued.

Borala (Matara District).

Trials with varieties of citronella grass have been continued. A report on the results so far obtained has been prepared for publication.

Bandaragama (Kalutara District).

1. A mangosteen plot, 1 acre in extent, has been established.

2. A mango plot, 1 acre in extent, of four varieties of Indian grafted plants, has been established. The varieties are—Alphonso, Malgova, Bangaloora, and Koothathath.

Both plots have been well cleared and a cover crop of Boga Medalloa established.

3. In the Rubber area—

(*a*) The attempts made to establish cover crops (*Vigna* and *Centrosema pubescens*) have been only partially successful owing to a failure of the north-east monsoon rains.

(*b*) In order to provide material for extending the rubber area with "Budded Rubber" and "Selected seed," mother trees have been selected and prepared for the production of bud wood, and also a nursery of so called "Grade A" seedlings for stock has been established.

4. A report on the results so far obtained from the rubber tapping trials has been prepared for publication.

PADDY SEED STATIONS.

1. Four "stations" have been established as follows :—

	Extent. A.	R.	P.	
Akmimana ..	5	0	0	.. Galle District
Batapola ..	3	0	0	.. Galle District
Borala ..	2	2	0	.. Matara District
Bandaragama ..	5	0	0	.. Kalutara District

2. Sites for an additional two "stations" have been selected as follows :—

	Extent. A.	R.	P.	
Tissamaharama ..	10	0	0	.. Hambantota District
Matugama ..	5	0	0	.. Kalutara District

3. The under-mentioned two "stations" have been given up. Tihagoda (Matara District) and Kobowella (Kalutara District) in favour of Borala and Matugama respectively.

4. Owing to the continued failure of trials in the Southern Division with selected paddy tested out at Peradeniya or Anuradhapura (paddy breeding stations) a new system has been introduced. This system (the testing out of local selections *in situ*) was started during the maha season of 1926, and it is hoped that this work will now show steady progress.

PADDY TRIALS.

Salt Resisting Paddy.—The results of further trials with Mokook paddy have been disappointing, as the paddy although giving fair yields on average paddy lands, has proved a poor cropper on our saline soils.

Competitions.

Competitions on the following were conducted in the division during the year :—

(1) Paddy cultivation.
(2) Vegetable cultivation.
(3) Cotton cultivation.
(4) Selection of seed paddy.
(5) Police Gardens.

The number of entries was exceptionally large and there was keen rivalry amongst the competitors. Most of the plots were satisfactorily cultivated and produced good results. These competitions are helping in a practical way to show the villager the benefits of careful cultivation.

Galle District.

The competitions in the Galle District were confined to members of co-operative societies only, with the object of encouraging the co-operative movement. The societies in the district were divided into four groups and competitions were organized for each group of societies.

1. *Paddy.*—Four competitions were held and entries totalled 124. The following societies took part :—

Akmeemana, 29 ; Telikada, 20 ; Ganegama, 13 ; Elpitiya, 5 ; Wellapoda pattu, 1 ; Udugama, 21 ; Heenatigala, 33 ; and Yatalamatta, 2.

2. *Vegetable Gardens.*—Four competitions were conducted and entries totalled 44. The following societies took part :—

Akmeemana, 12 ; Telikada, 5 ; Ganegama, 12 ; Batapola, 5 ; and Elpitiya 10.

Matara District.

1. *Transplanting of Paddy.*—Three competitions were conducted in the following pattus :—

	Entries.
(1) Four Gravets	5
(2) Gangaboda pattu	16
(3) Weligam korale	3
Total ..	24

2. *Vegetable Gardens.*—Four competitions were conducted in the following pattus :—

	Entries.
(1) Four Gravets	3
(2) Gangaboda pattu	12
(3) Wellaboda pattu	26
(4) Weligam korale	4
Total ..	35

3. *Selected Seed Paddy.*—Two competitions were held in the following pattus :—

	Entries.
(1) Kandaboda pattu	6
(2) Wellaboda pattu	19
Total ..	25

4. *Chena Competition.*—Two competitions were organized for Kandaboda pattu and Morawak korale, but owing to unfavourable weather conditions no chenas were cultivated during the year. A valuable contribution of Rs. 300 towards the prize money was made by the Hon. Mr. F. A. Obeysekera.

Hambantota District.

1. *Cotton Competition.*—There were five competitions for the following divisions :—

(*a*) East Giruwa pattu—
  (1) Paranagama palata.
  (2) Wewgam palata and Pahala Walakada.
  (3) Moderagam palata and Ihala Walakada.
(*b*) (4) West Giruwa pattu.
(*c*) (5) Magam pattu.

There were nearly a 1,000 entries from all the divisions.

The general improvement in attention to weeding in the cotton plantations this year is in no small measure directly attributable to these competitions.

Money prizes were given in addition to five gold medals offered for the second time by Mr. E. S. Captain of the Ceylon Spinning and Weaving Mills Company, Limited.

Kalutara District.

1. *Paddy.*—Three competitions were carried out in the following pattus :—

	Entries.
(1) Rayigam korale and Panadure Totamune	41
(2) Pasdun korale east	126
(3) Pasdun korale west and Kalutara Totamune	32
Total ..	199

2. *Vegetable Gardens.*—Three competitions were conducted in the following pattus :—

(1) Rayigam korale and Panadure Totamune	..	43
(2) Pasdun korale east ..	..	81
(3) Pasdun korale west and Kalutara Totamune	..	14
Total	..	138

Police Gardens.

Two competitions were held in the following districts :—

(1) Galle. | (2) Matara.

Among members of the Police Force. These competitions were well appreciated and keenly contested.

School Gardens.

The total number of registered school gardens in the division is 184 as follows :—

		The Increase over the Previous Year.
Kalutara District..	55 ..	11
Galle District	42 ..	11
Matara District	41 ..	3
Hambantota District	32 ..	11
Grant-in-aid schools	14 ..	—
	184	36

There are also 45 school gardens awaiting registration.

The Rural Education District Committee, Galle, voted a sum of Rs. 450 for the registration of new school gardens, and the following have been registered during the year :—Weragoda *b*, Telikada *g*, Weihena *m*, Kahaduwa Ambana *g*, Elakake *g*, Amugoda *b*, and Mawella *b*.

The Rural Education District Committee, Matara, voted a sum of Rs. 100 for the registration of new school gardens and the following have been registered :—Mirissa *a-v. b.* and Kapuduwa *b*.

The Rural Education District Committee, Hambantota, voted a sum of Rs. 750 and the following 11 new school gardens have been registered during the year :—Bowala *m*, Beligalle *g*, Illukmula *m*, Palapota *b*, Getamanne *b*, Nihiluwa *g*, Alutwewa *b*, Ambalantota *b*, Palapota *g*, Galagama *g*, and Pallejulampitiya B.

Implements to the value of Rs. 1,200 have been supplied to existing registered school gardens.

Awards to the value of Rs. 750 and certificates were given to 60 Government school teachers for good work done in gardening.

Twenty-five certificates without monetary awards have also been issued to teachers for good work.

Five certificates have also been issued to teachers of grant-in-aid schools who have done good work in gardening.

Awards amounting to Rs. 200 and certificates were granted to 134 boys who distinguished themselves in home gardening.

Two-hundred and sixteen certificates without monetary awards have also been issued to other pupils for good work in home gardening.

Ten school gardens in this division have paddy fields attached. These fields have been cultivated with the help of the children who have taken keen interest in the work. The system appears to be working satisfactorily.

Cotton growing in school gardens in Hambantota District is popular amongst the teachers and is encouraged within limits. Remunerative crops were realized in many of the schools.

The cultivation of currystuffs has not however been generally popular.

There has been an all-round improvement in school garden work during the year largely as a result of the interest taken by the teachers in the different competitions.

Home gardens have increased in number and are becoming more general throughout the division. Boys who start home gardens are supplied with seeds and plants from the school garden.

Special attention has been paid to teaching of Nature Study during the year. About two lessons, for a week, are given to each class from the second standard upwards. Instruction regarding the teaching of this subject has been given at the time of each inspection. A few teachers have also started to collect specimens of agricultural products, such as fibres, seeds, &c., which will be of use for these lessons.

There are 23 teachers in Government schools of this division who have had their training at Peradeniya School of Tropical Argiculture.

Juvenile offenders of the Maggona Reformatory were examined in gardening during the year and the results were good. This class is in charge of a past student of the School of Tropical Agriculture.

A number of school garden competitions were held during the year :—

(1) Mudaliyar Waidyasekera's School Garden Competition, Rs. 100, offered for the three best school gardens in Kalutara District.

(2) Pasdun Korale West Home Garden Competition, Rs. 50, offered anonymously by a resident of Pasdun korale west for the three best home gardens in the korale.

(3) Weligam Korale School Garden Competition, Rs. 15
(4) Matara Gangaboda Pattu School Garden Competition, Rs. 15
(5) Morawak Korale School Garden Competition, Rs. 15
(6) Matara Wellaboda Pattu School Garden Competition, Rs. 15

} For the best school garden with the largest number of home gardens attached for each pattu.

Offered by the following gentlemen :—

Weligam Korale.—David Samaraweera, Esq., J.P.
Matara Gangaboda Pattu.—Mudaliyar, Gangaboda pattu.
Morawak Korale.—E. J. Buultjens, Esq.
Matara Wellaboda Pattu.—Mudaliyar, Wellaboda pattu.

Agricultural Meetings, &c.

Matara.—Two meetings of the District Agricultural Committee were held.
Hambantota.—One meeting of the Food Production Committee was held.
There has been a welcome increase in the number of inquiries and requests for advice from estates and plantation—chiefly rubber, coconuts, and citronella, and a number of estates have been visited during the year.

Co-operative Work.

In this division there are 77 co-operative societies, which are distributed as follows :—

Galle District ..	.. 23	Hambantota District	.. 5
Matara District..	.. 18	Kalutara District	.. 31

A statement of work done in connection with these societies is given as a separate report.

G. HARBORD,
Divisional Agricultural Officer, Southern Division.

NORTHERN.

New Stations.—Paranthan Paddy Seed Farm and Vavuniya Experiment Station were opened during the year.

Experiment Station, Jaffna.

Farm Improvements.—The pumping installation is now almost complete. There has been some improvement in the water supply as the well was deepened and the irregular pits at the bottom have been trimmed.

The construction of two trench silos, a urine pit, and a bathing place for the cattle were completed during the year.

The cattle shed was supplied with a piped water supply.

Repairs to the tobacco curing shed were attended to.

Good progress was made in the construction of the roads within the farm.

Machinery and Implements.—The engine worked satisfactorily throughout the year. Engine records were started with a view to ascertaining the cost of maintenance including depreciation, interest, running charges, &c.

The purchase of a " Hathi " mill for crushing sugar cane was made. It is a 3-roller iron mill capable of expressing 200 lb. of juice in one hour. The mill extracts juice to an average of about 65 per cent. of the weight of cane.

A Ransome's all-steel victory plough was imported. It is found extremely useful for garden lands, but its work is more effective when there is some moisture in the land.

The monsoon and the pony plough continue to do satisfactory work. They were lent or hired to eight cultivators during the year.

Live Stock.—An addition was made to the dairy herd by the introduction of three heifers from the school dairy at Peradeniya. The strength of the dairy herd during the year was five scind heifers and two scind bulls. One stud bull died during the year and the other was sold to the District Adigar, Mantai. A selected scind bull has been imported from India for the farm herd.

Season.—The rainfall recorded for the year was 38 inches about 8·15 inches less than that of the previous year. The distribution was rather uneven. The heavy rains of October and November were unfavourable for the fodder crops which accounts for the shortage of fodder supply during the season. The light rains during February and March were favourable for the successful growing of the non-irrigated tobacco crop.

Crops, Tobacco.—The season under review has been a very favourable one—a good crop of tobacco having been harvested from all plots. All the nurseries with the exception of two late-sown nurseries did extremely well. Good healthy seedlings were available for planting, so that the crop received a splendid start. Transplanting was completed in December and harvesting was completed before the end of April.

(*a*) *White Burley Tobacco : Dry Cultivation Experiment.*—The growing of tobacco without irrigation was attempted for the third time with great success. A crop of 1,973 plants yielded 358 lb. of cured leaves which works out at 5·5 plants per lb. An appreciable improvement in the quality of the leaf in points of colour, burning quality and body was noticeable. The results this year as in the previous seasons show considerable promise in the direction of growing tobacco without irrigation. This experiment is being continued and extended.

(*b*) *White Burley : Seed Tests.*—Seeds of White Burley were imported from America in 1923 and 1925 for trial as the local White Burley (seeds of which were originally obtained from Kentucky in 1914) had tended to degenerate. The results of this season are in favour of a policy of occasional change of seed by a supply from America. An improvement in yield and quality of the leaf was obtained from the imported seed.

(*c*) *White Burley : Spacing Experiment.*—The plants were spaced 3 feet by 3 feet, 2½ feet by 2½ feet, and 3 feet by 2 feet. The results show that planting 3 feet by 3 feet give better returns than either 2½ feet by 2½ feet or 3 feet by 2 feet. Close planting produced thinner leaf than plants set further apart.

(*d*) *White Burley : Manurial Experimnt, Field No. 7.*—This experiment which was initiated in 1923 to compare the various methods of manuring practised in this locality was continued. The residual effects of these manures on the succeeding crops of tenai and kurakkan have also been noted. The results so far obtained are not conclusive.

(*e*) *White Burley : Fertilizer Experiment.*—Application for single, double, and triple doses of complete fertilizer (1 cwt. nitrate of soda, 2 cwt. superphosphate, and 200 lb. sulphate of potash per acre) resulted in an yield of 346 lb., 540 lb., and 1,200 lb. of cured leaf per acre.

(*f*) *Tobacco Varieties.*—Four varieties: Adcock, Mauritius, Green River Burley, and Resistant Burley were grown tentatively in small plots.

Chillies : Selection.—Selection work with chillies was continued. In the initial stages the crop was very promising, but the early rains of the north-east monsoon were unusually heavy and hampered the harvesting and curing of the crop. Strain No. 12 continues to be promising. A cultivator who grew this unit strain writes that it yielded as much as 4,000 lb. per acre. Over 20,650 seedlings besides 7 lb. of seeds of strains Nos. 7, 12, and 8 were sold from the Experiment Station this year to 62 cultivators. The Central Seed Store was supplied with 1,539 lb. of dried chillies of the leading strains available for seed.

Tenai : Selections.—Of the 50 single plant lots put out in strips for comparison 10 were reserved for further test.

Farm Selection No. 5 which was sown in field No. 7 for seed multiplication and also to test the residual effect of the various manures applied to the previous crop tobacco yielded 644 measures per acre which is much above the average in the vicinity.

Ven-tenai and Sen-tenai—Two local varieties grown after tobacco in field No. 3 yielded 440 lb. and 384 lb. respectively.

Kurakkan—Selection—Fifteen lots of single plants were compared in strips in 3 series. Five of the leading strains were reserved for further test during the current season, 1,342 bundles of seedlings of strain No. 8 were sold to 16 cultivators during the year. The average yield obtained by three cultivators in the vicinity of the farm is about 960 measures of grain per acre, which shows a marked improvement over the local crop.

Kurakkan selection No. 8.—One of our standard types was planted in field No. 7 for seed multiplication and also to test the residual effect of the various manures applied to tobacco yielded 653 measures per acre, which is again much above the average for the season.

Cambu.—An irrigated crop Nagour cambu which occupied 1/32 acre yielded 1,920 lb. per acre.

Maize.—Hickory King and Small Dent which were sown in ⅛-acre plots yielded 2,080 lb. and 720 lb. per acre respectively.

Sami (*Panicum miliaceum*).—Sown after tobacco in field No. 3 gave an acre yield of 1,040 lb. of grain and 3,200 lb. of straw per acre.

Buck Wheat and Adlay grown in small plots yielded 800 and 1,200 lb. per acre respectively.

Fodder Crops.—Cholam and Guinea grass form the chief fodder crops of this station. As the live stock attached to the farm has increased lately the area under fodder cholam was sown and cut at milk stage and either fed directly to the stock or stacked till wanted or made into ensilage. The crop raised with the aid of rains yielded as much as 8,000 lb. of straw per acre. The irrigated crops yielded 6,000 lb. per acre. 12,500 lb. of cholam were made into ensilage. . 7,508 lb. were obtained and was much relished by the cattle.

The areas under Guinea grass and Napier grass remained the same as in the previous year, and yielded 35,300 lb. and 39,980 lb. per acre respectively for 11 cuttings.

Lucerne grew fairly well. Considerable trouble was experienced in establishing the crop. The crop was cut only three times during the year and 34,000 lb. per acre was obtained. The Poona and Coimbatore varieties of lucerne did on the whole much better than the American varieties.

Kolukattai Grass.—A variety of pasture grass from Coimbatore sown in the paddock continues to give satisfactory results. It stood grazing well.

Leucæna glauca.—The crop promises to be a suitable crop for the dry land of this district. The ripe pods were harvested twice during the year and an acre yield of 1,536 lb. of seed was obtained. The seed was given to the cattle either crushed or boiled. The area under this crop was extended.

Tomatoes.—The crop on the whole was a fair one. Yields of 3,010 lb. per acre were obtained. The tomatoes produced on this station are reputed for their size and quality.

Turmeric planted in an area of ⅛ acre yielded 692 lb. of fresh rhizomes which works out at 5,536 lb. per acre.

Ground-nuts.—The yield of ground-nut was rather poor on account of the deficient rainfall in January and February. The average yield was about 279 lb. per acre.

Yams.—The experiment of planting of whole yams VS sections of yams was continued. The results are in favour of the former as in the previous year.

Plantain Varieties.—Suckers of 13 varieties collected from this district were planted after tobacco in an area of ¾ acre. The crop is just beginning to flower and is very promising.

Onions.—Local onions were grown in beds as well as in ridges to see which method will give better results. The yields were 2,000 lb. and 2,880 lb. respectively. Bombay onions yielded 3,200 lb. per acre.

Betel Vine.—A crop of 2,000 vines was established.

Sugar Cane.—Eight varieties of canes were planted in equal sized plots in an area of ½ acre. The canes were crushed and jaggery was made. The total yield of jaggery from the area was 980 lb. which works out at 1,960 lb. per acre. The cultivation was extended with a view to find out the suitability of the crop to this district.

Pineapple.—Eighty-four suckers of each of Kew and Mauritius pineapple planted in 1/16 acre yielded 56 and 66 fruits respectively. The taste and quality of the fruits produced on this station has received special mention from many who have bought fruits from us. Plants that were not shaded did not produce any fruit. Grapes, limes, oranges, pumpkin, and Avocado pear are growing well.

Miscellaneous Crops.—Varieties of cucurbits, coriander, and linseed, Cape cabbage, lettuce, radish, spinash, and beet root have all given encouraging results.

Seed Distribution.—The following quantities of seeds were distributed from this station during the year :—

Tobacco seeds ..	59 per cent. oz.	Guinea grass sets ..	3,109 sets
Maize ..	13 measures	Tobacco seedlings ..	40,000
Periyamanjal cholam ..	104½ ,,	Chillie seedlings ..	20,650
Bombay fodder cholam	13 ,,	Kurakkan seedlings ..	1,342 bundles
Groundnuts ..	46 lb.	Tomato seedlings ..	1,349
Chillies ..	7 ,,		

Seeds issued to Government Institutions.

Dry chillies ..	1,543 lb.	Cucumber ..	2 packets
Maize ..	155 measures	Cummin ..	3 ,,
Ground-nuts ..	119 lb.	Bitter gourds ..	5 ,,
Periyamanjal cholam ..	77 ,,	Snake gourds ..	12 ,,
Leucaena glauca ..	10 ,,	Bandakka ..	10 ,,
Kurakkan ..	32 measures	Coriander ..	2 ,,
Tenai	18¼ ,,	Lufa ..	7 ,,
Sami	32 ,,	Bottle gourd ..	5 ,,
Tobacco seeds ..	10 oz.	Cabbage ..	3 ,,
Kolukattai grass seeds	1½ lb.	Lettuce ..	5 ,,
Tomatoes ..	12 packets	Melon ..	4 ,,
Ash pumpkin ..	4 ,,	Sugar pumpkin ..	3 ,,
Pumpkin ..	5 ,,	Guinea grass ..	2,000 sets
Brinjals ..	7 ,,	Napier grass ..	2,000 ,,

Dry Zone Experiment Station, Anuradhapura.

Season.—The total rainfall recorded during the year was 57·34 inches, which is very nearly the average. Its distribution was favourable.

Crops Sisal Fibre was extracted from leaves harvested from plots D1 to D8 (18 acres). 14,307 plants yielded 884,414 leaves. This works out an average of 40·8 leaves per plant. The total output of dry fibre for the year was 12 tons 13 cwt. 2 qrs. 24 lb. of graded fibre. Sales have been affected in Colombo at Rs. 400 to Rs. 425 per ton of first quality fibre. A straw baling press was used for baling the fibre before despatch to Colombo and worked very satisfactorily. The plants in plots D1 and D2 having poled were uprooted, and the area replanted with one-year old plants from our nurseries. Green gram was sown as a catch crop between the rows of fibre.

Mauritius Hemp.—All the leaves of the plants in this area have been cut preparatory to uprooting the plants. It is proposed to grow chena crops in this area.

Kapok.—Planted in October, 1923, have yielded a small crop 2½ years from planting. The plants are growing well except in swampy low land.

Citrus.—241,809 lime fruits were picked or collected during the year from an area of 4 acres. The principal fruit season was from July to November. Smaller flushes were practically obtained throughout the year. There was no difficulty in disposing the fruit in the local market at Anuradhapura. The hotels and traders from Trincomalee and Jaffna purchased large supplies. The land was irrigated once a week during the dry weather and discharrowed once in two months. All dead branches were cut off and burnt and dead trees were uprooted and the vacancies supplied with plants of British Guiana lime from our nurseries. In June, 1926, several of the trees began to die back and specimens sent disclosed the root disease caused by *Rhizoctonia bataticola.* This record is *Rhizoctonia bataticola* on lime is said to be new. Considerable interest in the cultivation of limes has been aroused and several orders for plants and seed are being received daily.

African Oil Palm.—The palms were pruned and the flowers fertilized according to the scheme laid down in 1923. Improvement continues in the size and numbers of fruit in the fertilized trees, compared with those under natural fertilization. Under the heavy pruned area 214 lb. of fruits were collected from the trees, and under the light pruned area 636 lb., 850 lb. of seed were obtained from the whole area under oil palms during the year. Oil extraction from the pericarp of the fruit and the kernal was conducted. The area was regularly disc-harrowed every two months.

Paddy.—Multiplication of pure-line paddies—39 strains of paddy which have been obtained by selection were sown broadcast during the yala season and 30 strains during the maha. The yields have been, on the whole, very fair considering the vast amount of levelling that had to be done, which necessitated the removal of the surface soil from most of the plots in this area.

Paddy Field near Lime Area.—Forty-three bushels of yala seed paddy from this area, which is reserved for local supply, were distributed among needy cultivators in the North-Central Province, and the value of same is to be recovered in cash or in kind at the subsequent harvest. For the maha season this area has been divided into three and sown with illankalayan, thillanayagam, and murungan paddies. All the varieties are doing well and a good crop is expected.

Coconuts.—Planted in 1916 on unirrigable land. The yield per tree was 12·22 nuts, against 11·62 nuts in 1925. The land was disc-harrowed every two months. One palm was affected by bud rot.

Economic Plots.—All the plots in this area have been ploughed and tooth-harrowed during the dry weather with a view to eradicating cora grass, which had become very troublesome. This has checked the growth of this weed to an appreciable extent. A cropping scheme has been prepared

for growing a variety of crops on the land in succession. The following crops are grown during the year under report :—Several varieties of chillies, sorghums, dhall, tenai, adlay, green gram, black gram, kollu, amu, maize, kurakkan, hill paddy, *Dioscorea* yams, sugar cane, snake gourd, tomatoes, and cow-peas.

Dioscorea Yams.—Forty lb. of king yams planted in June, 1925, and lifted in March, 1926, yielded a crop of 354 lb., or an acre yield of 9,680 lb. of yams.

Snake gourds gave good results. Tomatoes gave good crops especially the variety " Field Beauty."

Coffee.—Two of the four plots of Robusta coffee were uprooted as two plots were considered sufficient for demonstration purposes. The *Gliricidia maculata* shade trees over the coffee has been topped to 8 feet and the loppings mulched round the coffee plants. The yield obtained during 1926 was good.

Fruits.—One-tenth acre of Mauritius and 1/5th acre of Kew pineapples have been planted. The Mauritius variety was planted on the two row system—the plants being set at 15 inches apart and 3 feet apart between the double rows. The Kew variety was planted 3 feet by 3 feet apart under *Leucæna* shade. Good crops of fair size pineapples were obtained in May, June, and November and found a ready sale on the station. A plot of plantains consisting of four varieties were planted. Half of the plot was planted in the West Indian Method of burying the suckers in a hole 2 feet deep with the eye uppermost and the other half in the local method of planting the whole sucker. It is obvious from the appearance of the strong healthy plants that the former method is the better of the two. It now remains to be seen which of the two methods is going to fruit earlier and produce heavier bunches. The plants are free from disease.

Avocado Pear.—Twelve plants of Avocado pear received from Peradeniya were planted out near the Economic Botanist's paddy store and have so far made fair growth.

Grape Fruit.—The grape fruit has increased in popularity in Anuradhapura and several orders for fruit and seedlings were received. Seed from plants of proved qualilty on the station have been sown in nurseries for distribution.

The pomegranate plot has been extended.

Mandarin, soursops, custard apples, guavas, cashewnut, mulberry, and papaw gave fair crops. Oranges and grafted mangoes gave very poor crops.

Chena Sowing.—Three-fourth acro sown with kurakkan yielded 29 bushels. Several types were selected by the Economic Botanist for future trials. Three-fourth acre of thillanayagam paddy yielded 5 bushels and 27 measures of clean paddy and 682 lb. of straw. The poor yield is due to unfavourable weather after sowing.

Aleurites.—The plants of *Aleurites Fordii* and *A. montana* planted in 1923 has made very fair growth but have not begun to flower yet.

Miscellaneous.—An Adco experiment with sisal refuse was conducted to find out if this refuse could be converted into a useful fertilizer. The Agricultural Chemist in his report stated that its application to light sandy loams is likely to produce beneficial results.

Straw Baling Press.—A straw baling press purchased in Colombo was given a trial, and the straw baled resulted as follows :—

The average weight of a bale of straw was 190 lb., which is equal to a 100 ordinary size bundles. Two coolies working 8 hours a day can press 10 bales at a cost of Re. 1·50 for 10 bales or 1,900 lb. of straw.

Cooly Lines.—A temporary set of 10 rooms was erected close to the new paddy area and a permanent set is in the course of construction. Labour was scarce during the early part of the year, but improved later and was plentiful in November and December. The health of the staff and labour force was more satisfactory than previous years. Quinine and epsom salts have been regularly administered.

The distribution of water to the station was far from satisfactory. Several complaints had to be made in spite of which the planks and padlocks at the distribution gates have not yet been replaced.

Plants, cuttings, and seed to the value of Rs. 87·75 have been supplied free of charge to school gardens and villagers.

EXPERIMENT STATION, VAVUNIYA.

The station was opened on August 1. The object of the station is for studying the economic feasibility of replacing shifting by permanent cultivation and with the object of ascertaining the most satisfactory rotation crops.

A piece of unirrigated land of 20 acres in extent near the 112th milepost on the Jaffna-Kandy road known as Palayadikkadu was selected. The felling and clearing of the jungle was given on contract, the jungle was set fire to on September 2. The burning was not a success. The jungle did not burn well owing to a heavy shower of rain on the evening of setting fire.

From this date the clearing of the land of all shrubs twigs by heaping and burning was continued till October 15. The southern part of the land towards Vavuniya town is irrigable. Five acres of low land was selected for paddy work and sown with ilankalayan and yakka varieties on October 15. The plants showed a healthy appearance when young, but during latter part of November the ilankalayan was stunted in growth and the shoots began to die back. The yakka variety is doing fairly well.

Cotton.—This was planted on the 8 acres of the unirrigable portion of the land that is towards Navatkulam. The sowing began on October 20 and lasted till the end of the month. Three seeds of Cambodia variety were put in one hole which were 5 feet by 5 feet apart. The cotton leaf caterpillar attacked the cotton, but did not assume serious proportions.

Sorghum.—This was sown broadcast on October 26 between the main road and the cotton in a narrow strip. The growth was very satisfactory throughout. The growth was very luxuriant.

Kurakkan was broadcasted in one acre of land north of paddy plot and adjoining the railway line. The germination was very uneven.

Currystuffs.—Some seeds of cummin, aniseed, coriander, and fenugreek was sent by the Divisional Agricultural Officer to be experimented with as the result of a request from the Food Production Committee of the Vavuniya South Sinhalese and Tamil Divisions. The seeds were sown in beds of 6 feet 6 inches by 33 feet on December 1. The seedlings are doing well.

Sami.—This was sown on December 10 and is 2 in. in height at the end of the month. The growth was even and good.

Paddy Station, Kanniyai, Trincomalee.

Mr. V. Ramanathan, Agricultural Instructor, took charge of this station on January 18, 1926.

This station has been converted into a paddy seed farm for the purpose of testing new and existing selections of pure-line paddies with a view to finding out the suitability of one or more pure-line strains for this district and to serve as a distributing farm of pure-line seed paddies for the district.

Two varieties of pure-line paddies (F7 and K5) aged 5½ months were cultivated during the maha season of 1925–26, which gave an average yield of 25 and 45 bushels per acre respectively. The F7 strain has been discarded and only the K5 strain is being cultivated as the main line for the maha season of 1926–27.

Trials of 20 new selections in each of the most popular varieties in the districts, namely, Oddavalan and Sellakkadai, have been started under the single row system of testing with a view to selecting the best strains. In order to meet any immediate demand for short aged pure line seed paddies, the following new selections are being cultivated for the maha season of 1926–27:—

Mb 14 Morungan, Hk 13 Kaluheenati: 3–4 months.
Mb 27 Morungan, Ib 16 Ilankalayan, Ho 6 Karupuchenati, 4b 3 Henati: 4–4½ months.

Seed paddies of F7 and K5 were supplied to eleven cultivators in the district at different centres for trial during the maha season of 1925–26. Some of the cultivators have sown these paddies for the maha season of 1926–27.

Improved Implements.—A Burmese 5-tined wooden harrow was sent by the Economic Botanist and was at work at the Kanniyai Experiment Station. There is every possibility of this implement becoming popular among the cultivators as it will greatly facilitate the puddling work and would not necessitate the possession of an additional levelling board.

Paddy Station, Uyilankulam, Mannar.

Mr. A. V. Chelvanayagam, Agricultural Instructor, took charge of this station on January 20, 1926.

This station was started last year, five acres of low land for paddy and two acres of high land for fodder trials. The latter was opened during the year. Five varieties of pure-line paddy were grown during the two seasons. An yield of 20-fold were realized out of these paddies. Sixty-four and a half bushels of seed paddy from the best varieties were distributed among the cultivators for cultivation. About thirty-two acres were cultivated under this seed. The high land for the fodder trials was planted with two rows of sisal, around the fences, to find out whether the crop will be suitable as hedge plant for paddy fields. The different plots have been cultivated with fodder grasses to find out which variety will grow well in the district under dry conditions. A plot from this high land is lent to the District Road Committee as a nursery plot for shade trees under the supervision of Agricultural Instructor, Mannar.

Statement showing the number of demonstrations plots worked in co-operation with village paddy cultivators:—

Kalapokam, 1925–26.

	Centres.	Plots.
(*a*) Green manuring	4 ..	40
(*b*) Transplanting	3 ..	6

Paddy Seed Farm, Paranthan.

The Agricultural Instructor (Mr. N. Thambiah) assumed duties on January 18, 1926.

The Paddy Seed Farm Advisory Committee appointed in 1925 has met twice during the year at the farm. This Committee is doing very useful work for the progress of Karachchi Scheme paddy cultivation by conducting various experiments in their farms and discussing important questions relating to cultivation.

Twenty-five acres were cleared of the shrub jungle, stumps extracted, channels and bunds constructed, ant hills removed, the land fairly levelled, area wire fenced, and the land divided into ½-acre plots each.

Eighteen and a half acres were brought under sirupokam cultivation with the under-mentioned pure-line varieties of paddy:—

Varieties and Yields.

Name of Paddy.	Selection No.	Acreage cultivated. Acres.	Total Yield. Bushel.	Yield per Acre. Bushel.
Heenati from Northern Province ..	Hd 5 ..	4 ..	119½ ..	29 1/16
Karupu cheenati 3 months ..	Ho 33 ..	2½ ..	70¼ ..	28 app.
Karutha cheenati 4 months ..	Ho 16 ..	2½ ..	75 ..	30 app.
Podi heenati 4 months ..	Hp 23 ..	3 ..	91¼ ..	30⅓ app.
Morungan from Mannar ..	Mb 14 ..	½ ..	14½ ..	29 app.
Morungan from Northern Province ..	Mb 28 ..	1½ ..	53⅝ ..	35¾ app.
Ilankalayan	Ib 16 ..	4 ..	65 ..	16¼ app.
Kuruvey local variety ..	— ..	½ ..	16 ..	32 app.
		18½	505⅛	27¼

Total yield, 505⅛ bushels; average per acre, 27¼ bushels.

For kalapokam the whole area is brought under cultivation and the following varieties have been sown :—

Name of Paddy.	Pure-line Selection No.	Age. Months.	Acres cultivated.
Karupu cheenati ..	Ho 6 ..	4–4½ ..	3
Ilankalayan ..	Ib 16 ..	4 ..	4
Morungan from Mannar ..	Mb 14 ..	3 ..	1½
Morungan from Northern Province	Mb 28 ..	4 ..	3
Samba, local variety ..	— ..	6 ..	½
Podi heenati ..	Hp 23 ..	4 ..	1½
Heenati from Northern Province	Hd 5 ..	4 ..	1
Karupu cheenati ..	Ho 33 ..	4 ..	4
Karutha cheenati ..	Ho 16 ..	3 ..	2½
Pure-line selection trials	— ..	— ..	1½

In addition the following experiments are carried on in 1½ acres :—

Main Line Selection.

(1) Ilankalayan.
(2) Heenati from Sabaragamuwa.
(3) Karupu cheenati from Mannar.
(4) Dahanala.
(5) Morungan from Mannar.
(6) Morungan—control.

Rod Row Selection.

(1) Muppanagan.
(2) Morungan.
(3) Ilankalayan.

In 1 acre sunn-hemp (*Crotalaria juncea*) is being tried as a green manure crop. In another ½ an acre Daincha is tried as a green manure crop.

In ½ an acre Dhaincha and paddy are sown together and after a month the plot was ploughed over.

Vegetable seeds were distributed to some farmers.

Pineapples.—Thirty Mauritius and 20 Kew pineapple suckers have been planted in the farm.

Ploughing.—Ransome's Victory plough was tried in the farm with great success. The whole area was ploughed for kalapokam with this plough, costing at Rs. 4 per acre. This plough has a good future before it in the Karachchi area.

ALLAI SUGAR CANE EXPERIMENTS.

Ploughing.—Cross ploughing and cultivation was carried on regularly, and the soil was kept in good tilth.

Planting.—This was done by instalments in February, March, July, August, September, and October by opening furrows with the help of L. N. O. ridging plough.

Raising the Low Area.—The low portion of the land was raised by filling in with earth brought from outside.

Supplying Vacancies.—This was done during the months of March, October, and November in places where the sets failed owing to the attack of white ants.

Main Irrigation Channel.—This was constructed from the bed of the river to the field and the channel was turfed. Arrangement has been made to erect a Persian wheel.

Irrigation.—Regular irrigation was given during the months of February, March, April, May, June, July, August, September, and October.

Earthing the Plants.—The plants were earthed in March, May, and October.

Flood Precaution Bund.—This was constructed at the low land along the wire fence to a breadth of 4 feet and to a height of 4 feet to prevent flood getting in during the months of April, May, October, and November.

Manures.—Sulphate of ammonia was applied at the rate of 200 lb. per acre during the months of May, September, and December.

WHITE BURLEY PURCHASE SCHEME.

The progress made in the extension of White Burley cultivation for the past four years may be seen from the appended statement :—

Year.	Number of Villages concerned.	Number of Cultivators.	Total Number of Plants.	Total Quantity of cured Leaf. lb.
1923 ..	8 ..	27 ..	6,314 ..	801
1924 ..	17 ..	66 ..	24,719 ..	3,864
1925 ..	29 ..	268 ..	114,873 ..	14,131
1926 ..	27 ..	219 ..	106,940 ..	18,826

The slight reduction in area under White Burley in the district was due to the fact that high prices ruled during the year for the Travancore tobacco. However the outturn of cured leaf was the highest ever achieved since the inception of the purchase scheme owing to the favourable weather conditions.

Over 40,000 seedlings besides 59 per cent. oz. of seed were sold from the Experiment Station. Six nurseries were established in the villages of Tinnevelly and Urumpiray which are within easy reach of the Experiment Station and where the extension of White Burley cultivation is most advanced. The cultivators as in the previous season delivered the crop on the station as cured produce and a sum of Rs. 14,156·42 was paid for 18,826 lb. The prices were paid according to grades offered at rates

varying from 60–80 cents per lb. The crop was consigned in 87 bales of 2 cwt. each to the Crown Agents in London for sale. Results of the sale of the first consignment of 41 bales are now to hand and the prices realized being as follows :—

11 bales at 1*s.* 8½*d.*, 1 bale at 2*s.*, and 29 bales at 1*s.* 6*d.* per lb.

The average price realized for this consignment is about 1*d.* per lb. more than was obtained for the 48 bales sent to England in October, 1925. Messrs. Jul. Siemssen & Co. who examined samples of the 41 bales of tobacco observed an improvement in the quality of the leaf. The second consignment of 46 bales realized 1*s.* 5½*d.* per lb.

Paddy Cultivation.

The Agricultural Instructors in this division are now in charge of small paddy stations where types suitable for each district are being tested. The Agricultural Instructor, Jaffna, who has no paddy seed farm visited eight villages and gave talks to cultivators on paddy cultivation with special reference to seed selection, manuring, and cultivation. Sunn-hemp growing in paddy fields immediately after harvest is becoming to be common. The Agricultural Instructor is making special efforts to extend this system of green manuring.

Paddy Manurial Trials.

The results of the manurial trials conducted last year were fairly encouraging and paddy growers are now taking some interest in fertilizers. During this year sixteen trials with bone meal, superphosphate, and fish guano in conjunction with sulphate of ammonia have been laid down in the Jaffna District. The results will be available during next March-April.

Agricultural Competitions.

The following competitions were held :—

(1) Plantain competition.. Trincomalee District
(2) Paddy competition .. Mannar District
(3) Garden competition .. Mannar District
(4) Tobacco competition.. Mullaittivu District
(5) Paddy competition .. North-Central Province

Demonstrations.

The Agricultural Instructor, Jaffna, invited the cultivators living near the area where the manurial experiments were tried and gave talks on the use of different varieties of manures and their effects.

He gave four ploughing demonstrations and advice on curing White Burley tobacco.

The Agricultural Instructor, Mannar, had demonstration plots in co-operation with the cultivators on green manuring and transplanting paddy during the kalapokam season.

Lectures.

The Divisional Agricultural Officer read a paper before the Agricultural Conference held at Peradeniya on " General Progress in the Northern Division." He held conferences with cultivators in four villages, besides giving several lectures on co-operation.

The Agricultural Instructor, Jaffna, gave six lectures one on each of the following subjects :—

(1) The cultivation of White Burley tobacco.
(2) Advantages on green manuring.
(3) Seed selection.
(4) Fodder crops.
(5) Paddy cultivation.
(6) Aims and work of the Agricultural Department.

The Agricultural Instructor, Trincomalee, gave five lectures on paddy and currystuffs. Short talks on vegetables, chillie, maize, and plantain were given, and distributed small quantities of seeds.

The Agricultural Instructor, Mannar, gave lectures on paddy and currystuffs.

Food Production Committees.

Meetings have been held from time to time at Mannar, Trincomalee, Vavuniya, Mullaittivu. The Jaffna Committee does not meet but circulates papers. The Anuradhapura Committee has been dissolved.

Sanction was obtained from the Government for the Food Production Committees for free transport once per annum to the Experiment Stations in the Division. Advantage was made of this by the Mannar Food Production Committee and a few members of Jaffna and Trincomalee District Food Production Committees to visit Anuradhapura Experiment Station.

Agricultural Shows.

District Agricultural Shows were held at Mannar, Trincomalee, and Nelliaddy (Thenmaradchy) in the Jaffna District under the auspices of the District Food Production Committees. Special mention ought to be made of the Nelliady Show which was opened by His Excellency the Governor and the Mannar Show. Lectures were given by the various Agricultural Instructors concerned on paddy cultivation and co-operation at these Shows.

Rural Education District Committees.

The Divisional Agricultural Officer was appointed a member of the various above Committees in the Northern Division and attended meetings.

SCHOOL GARDENS.

There are 79 school gardens in the division distributed as follows :—

(1) North-Central Province	.. 49	(4) Mullaittivu District	.. 9
(2) Jaffna District	.. 6	(5) Trincomalee District	.. 7
(3) Mannar District	.. 8		

A supply of vegetable and flower seeds has been distributed to all schools as usual and also tools as required.

FARM SCHOOL, JAFFNA.

Report attached.

W. P. A. COOKE,
Divisional Agricultural Officer, Northern Division.

REPORT OF THE FARM SCHOOL, JAFFNA, FOR THE YEAR 1926.

THE public opening of the school was performed by His Excellency the Governor on June 9.

The Farm School completed one year of its existence and the first annual examination was held during the latter part of July.

There are in all ten students, of whom nine come from the Jaffna District and one from the Puttalam District.

Plot work formed a special feature of the training imparted and great stress was laid on practical work in the field. One-tenth of an acre plot was assigned to each student and the following crops were cultivated during the year by every one of the students :—

Bandakka and coriander as a mixture, maize and onion were planted on ridges ; chillie and tomatoes were planted in beds.

The class visited Paranthan Paddy Seed Farm and the adjoining area. Instruction was given by the Divisional Agricultural Officer and the Agricultural Instructor, Jaffna, on paddy cultivation under the Karachchi Scheme.

Agricultural Classes for Boy Scouts.—Agricultural classes for boy scouts were held on Saturdays during the second term of the year for the boy scouts of the colleges in Jaffna town and another class in Jaffna College for the 3rd form boys, extending from October to December. Instruction was given on the principles and practices of home gardening. The boys evinced the keenest interest in their work and the classes were a great success. The Farm School Officer and the Agricultural Instructor, Jaffna, were in charge of the classes.

Scholarship.—A scholarship of Rs. 30 a month, tenable for two years, was given by the American Mission Agents Co-operative Credit Society to Mr. S. Balasingham, a student of the school.

Library.—Seventy-seven volumes of books were obtained for the school library.

Laboratory.—The laboratory was equipped with chemicals and apparatus during the year.

Farm School Garden.—The following varieties of fruit trees—all grafts obtained from India were planted in the garden. Almost all are thriving well.

Name and number of fruit trees are :—Figs 2, pomelos 3, grape vine 2, guavas 6, mangoes—Khorder Nassand 5, Dil Nassand 5, Badani 5, Malgoa 5, Banglore 5, Alphonso 6, Gundu 5 ; oranges—Coorg 9, Malta 9, Satgur 9, Centra 9, rose apple 4, sapodillas 2.

V. CANAGARATNAM.
Farm School Officer, Jaffna.

NORTH-WESTERN.

SCHOOL GARDENS.

There are 110 registered school gardens in the North-Western Division. The following gardens were registered during the year and sets of implements were supplied :—

Wariyapola *g*, Kalugamuwa *m*, Delwita *b*, Weuda *g*, Dodangaslanda *b*, Wewala *b*, Bogamuwa *m*, Bunnehepola *b*, Gokarella *g*, Kekunagolla *b*, Dikwella *g*, and Mahapitiya *m*.

Departmental awards have been granted to the following number of school and home gardens :—

	Number	Value. Rs.
School gardens	38 ..	590
Home gardens	44 ..	110
		700

The following school garden competitions were held :—

(*a*) Colonel Wright's Prizes for vegetable cultivation—

Prize Winners, Kurunegala District : 1st Nakkawatta *b*, Rs. 50 ; 2nd Moragane *m* Rs. 25.

Chilaw Puttalam District : 1st Kelegama *m*, Rs. 25.

(*b*) Schneider Challenge Cup for the best garden in the Chilaw-Puttalam Districts—

Winner : CH/Maiyawa *m*.

(*c*) Mr. Chas. Chitty's prize of Rs. 20 for currystuff cultivation in school gardens in the Chilaw District was awarded to the Medagama school.

At the commencement of the maha season, 1926–27, the following school garden competitions have been organized :—

(*a*) Colonel Wright's prizes for the cultivation of vegetables, Rs. 100.
(*b*) Schneider Challenge Cup for the best school garden in the Chilaw-Puttalam Districts silver cup.
(*c*) Mudaliyar W. Daniel Fernando Waiydiasekara's prizes for the best cultivation of indigenous medicinal herbs in a school garden, Rs. 100.
(*d*) Messrs. D. S. Goonasekara and Samarawickrama's gold and silver medals for curry-stuffs cultivation in the Chilaw District.
(*e*) T. B. Madawala Ratemahatmaya's prizes for the cultivation of cotton in school gardens in the Weudawili hatpattu, Rs. 25.
(*f*) Mr. Chas. Chitty's prize for the cultivation of medicinal herbs in school gardens in the Chilaw District, Rs. 20.

In many school gardens the Head Teachers have improved their ornamental sections. *Duranta, Barleria, Croton, Hibiscus*, and Madras Thorn have been grown as hedge plants. Nearly all the gardens have barbed-wire fences. Kapok, murunga, Temple flower, and *Gliricidia* have been planted as fence posts. Flower beds have been manured and replanted.

In many school gardens the fruit sections have been extended. Plants have been pruned and manured. During the past year plants supplied by the Royal Botanic Gardens, Peradeniya, have been distributed to twenty schools. The best fruit section is at Kirindewa.

Keen interest is displayed by teachers in the competition for Colonel Wright's prizes and improvement in vegetable cultivation has been the result of it. A large number of varieties of vegetables, including currystuffs, have been grown, *e.g.*, Nakkawatta (65 varieties), Moragane (59), Meddegama (51), Kelegama (36), Kobeigane (44). Manuring and mulching of beds are widely practised.

Home gardens have increased in number and a larger number of vegetables have been grown. Seeds were obtained from the school gardens, and the produce has been sold at the local Fairs by the children.

Crop records have been kept up in many schools. Senior students who have been put in charge of plots record notes on the history of each crop. Printed "crop record" forms have been supplied to all schools.

Agricultural Shows.

Arrangements were made to hold two Agricultural Shows in the Wanni and Dambadeni hatpattus. Leaflets advertising the Shows and catalogues were printed and distributed, but the Shows were postponed by the Chief Headmen of the Divisions.

Paddy.

Kurunegala Paddy Trial Plots ; Yala Season, 1926.—(1) The following pure-line types of paddy were sown during the yala season, 1926.

Hb-8 (heenati, Province of Sabaragamuwa) ; Hd-4 (heenati, Northern Province) ; Hk-3 (kaluheenati, Mannar) ; Hk-13 (kaluheeneti). The crop was seriously damaged by the paddy fly and an yield of only 12 bushels and 21⅛ measures was obtained. It was decided to give these types a second trial and the following quantities were sown as a late maha crop (1926–27.)

Hb-8	.. ¼ bushel	Hd-4	.. ⅛ bushel
Hk-3	.. ⅛ bushel	Hk-13	.. ⅛ bushel

Maha Season, 1926–27.—(2) The pure-line paddies sown during maha, 1925–26, were harvested in February and yielded 111 bushels and 3½ measures. Three and three-fourth bushels were sown on the trial grounds for multiplication, and in order to test the performance of each type in the hands of villagers 94 bushels were sold to them. These were eagerly bought and sown in the following villages :—

Maraluwawa, Narampola, Ranawana, Habage, Hunupola, Wehera, Malpitiya, Katuwe, Makandure, Ihalakethe, Nakkawatta, Batagammana, Bibile, Meddegama, Wanahawela, Andagala estate, and Denagamuwa.

	Sown by Department of Agriculture. Bushels.	Sold to Cultivators. Bushels.		Sold by Department of Agriculture. Bushels.	Sold to Cultivators. Bushels.
a- 8 Podiwi	.. 1	.. 7⅞	i- 10 Puluk samba	.. ¼	.. 13
F-25 Sudu mawi	.. ⅜	.. 16¼	k- 16 Sura samba	.. ⅛	.. 11¼
g- 18 Molagu samba	.. ⅛	.. 10½	P- 5 Sudu mawi	.. ½	.. 6½
G- 1 Maha mawi	.. ⅜	.. 15	W-15 Mawi	.. ⅜	.. 13½

Further in order to test the effect of manures one cultivator of each type was supplied with manure at the rate of 1 cwt. castor cake and 1 cwt. of ephosphosphate per acre, as follows :—

Type.	Cultivator.	Manured. Lahas.	Unmanured. Lahas.
Sura samba k-16	.. Horatala	.. 10	.. 10
Molagu samba g-18	.. Kulanduwa	.. 8	.. 4
Maha mawi G-1	.. Balaya	.. 5	.. 15
Puluk samba local	.. Kiriduraya	.. 4	.. 16
Sudu mawi P-5	.. Hapuwa	.. 2	.. 2
Puluk samba i-10	.. Kulanduwa	.. 4	.. 2
Sudu mawi F-25	.. Puncha	.. 10	.. 6
Podiwi a-8	.. Simon	.. 10	.. 10
Mawi W-15	.. W. W. Fernando	.. 8	.. 8

Records are being kept of the pure-line types of paddy obtained by cultivators from the Agricultural Office, Kurunegala, in order to study their performance in the hands of village cultivators. These paddies have now been reported to be superior in growth to the local varieties.

PURE-LINE TRIALS.

(i.) *Field Trials.*—The following types of paddy have been transplanted in plots 33 ft. by 6½ ft. each, and each replicated six times in order to test their performance under experimental conditions :— a-8, a-12 (podiwi) ; F-25 (sudu mawi) ; g-18 (molagu samba) ; G-1, G-19 (maha mawi) ; i-5, i-10 (puluk samba) ; K-16 (sura samba) ; P-5, P-9 (sudu mawi) ; W-11, W-15 (mawi) ; and control local puluk samba.

(ii.) *Rod Row Plots.*—Twenty pure-line types of 2452/1–20 mudukiriyal, together with local mudukiriyal as control were sown in nurseries to be transplanted in rod row plots and replicated six times.

Fifty bushels of G-1 seed paddy grown by the President of the Pussella Co-operative Society from seed given by the Department of Agriculture) have been sown broadcast, and 32½ bushels transplanted by 25 cultivators in an extent of over 75 acres of paddy land in Pussella, Narammoluwa, Bogamuwa, Ukwattegedera, Pilessa, Balagolla, Wewagedera, and Puswelikanda.

Madampe Paddy Trial Grounds.—The following yields were obtained from the pure-line types sown during maha, 1925–26.

	Sown. Bushels.	Yielded. Bushels.		Sown. Bushels.	Yielded. Bushels.
a- 8 Podiwi ..	1⅛ ..	24	P- 3 Sudu mawi ..	½ ..	5
F-14 Sudu mawi ..	⅛ ..	2	P- 5 Do. ..	⅝ ..	3
F-25 Do. ..	½ ..	3⅝	P- 10 Do. ..	⅛ ..	5
G- 1 Mahamawi ..	¾ ..	5	W-11 Mawi ..	½ ..	2⅛
P- 1 Sudu mawi ..	¼ ..	6	W-15 Do. ..	½ ..	2⅝

Due to the scarcity of water at the required time and a severe drought later, the yields have been poor except that of podiwi. Fifty bushels of seed paddy were sold to cultivators of Madampe, Mahawelyaya, Bingiriya, &c. Two bushels of podiwi were transplanted by Mr. William Fernando,

Field trials at Madampe are conducted with the following varieties a-8 (podiwi), G-1 (maha mawi), i-10 (puluk samba), P-5, P-9 (sudu mawi), and W-15 (mawi),—control local podiwi.

Paddy Manurial Demonstrations.—With a view to encouraging the use of manures by paddy cultivators demonstrations in manuring were conducted at Pussella, Boyagane, Weuda, Kuliyapitiya, Galkandegama, Maraluwawa, Diyaturai, Batagammana, Kurunegala, Habage, Ihalakethe, Godawela, and Bandarakoswatta.

A result of these demonstrations is the increasing quantities of manures ordered through the Co-operative Societies.

Paddy-growing Competitions.—The following paddy-growing competitions were held during the yala season, 1926 :—

(*a*) *Nikaweratiya Paddy Cultivation Competition.*—Prize winners : (1) R. D. Silva, (2) Dingiri Banda, Vel-Vidane ; (3) B. N. Ranhamy.

(*b*) *Dewamedi Hatpattu Paddy Cultivation Competition.*—Prize winners : (1) K. M. Ukku Banda, Mahawela ; (2) B. Mudiyanse, Hettipola ; (3) M. Appuhamy of Madulla.

(*c*) *Bogamuwa Paddy Cultivation Competition.*—Prize winners : (1) M. O. Obeysekara ; (2) M. M. Dingiri Banda ; (3) Ukku Naide, Arachchi ; (3) M. James Appuhamy.

During the maha season the following paddy-growing competitions have been organized and partly carried out :—

(*a*) Kurunegala weeding competition.
(*b*) Hiriyala hatpattu paddy-growing competition.
(*c*) Atamune Co-operative Society paddy-growing competition.
(*d*) Dewamedi hatpattu paddy-growing competition.
(*e*) Ehetuwewa paddy-growing competition.
(*f*) Bogamuwa transplanting competition.

Currystuffs Cultivation.—The cultivation of currystuffs has increased in popularity and importance in this division. Special sections for currystuffs have been laid out in all school gardens, and the following competitions have been organized :—

(1) Bingiriya palata currystuffs cultivation competition.
(2) Watareka palata currystuffs cultivation competition.
(3) Currystuffs cultivation competition among school gardens in the Chilaw District.

The following prizes have been kindly donated :—

(1) A gold medal by Mr. Adamjee Lukmanjee, and
(2) A silver medal by Mr. H. W. Ruegge for the best two plots of currystuffs in the Bingiriya palata competition, and
(3) A gold medal by Mr. D. S. Goonasekara, and
(4) A silver medal by Mr. E. J. Samarawickrama for the best two plots of currystuffs in a school garden in the Chilaw District.

2. *Experiment Stations.*—The Dandagamuwa Demonstration Garden was closed at the end of September and steps have been taken to open out a new station for the rotation of chena crops in the dry zone at Maho.

CO-OPERATIVE SOCIETIES.

There are 29 registered societies in the division. Classes for the training of office bearers were held on August 30, 31, and September 1. The Hon. Mr. G. E. Madawala, M.L.C., opened these classes and presided at the first and second sessions. The Registrar of Co-operative Societies and Mr. T. B. Madawala presided on the second day and Mr. Suraweera on the third day. Mudaliyar Wickramaratne

conducted these classes. Papers on the progress of their societies were read by the Secretaries of Wariyapola, Atamune, Bogamuwa, Pilessa, Nainamadama, and Horambawa Societies.

There was a very large number of office bearers and members of societies and of the general public present.

The following agricultural competitions were organized by the members of co-operative societies :—

(1) Nikaweratiya paddy cultivation competition, yala, 1926.
(2) Atamune paddy cultivation competition, yala, 1926.
(3) Atamune transplanting paddy cultivation competition, yala, 1926.
(4) Bogamuwa paddy cultivation competition, yala, 1926.
(5) Ehetuwewa paddy cultivation competition, yala, 1926.
(6) Bingiriya palata currystuffs cultivation competition.
(7) Watareka palata currystuffs cultivation competition.

Messrs. Adamjee and Lukmanjee and E. J. Samarawickrama, Advocate, offered a gold and silver medal respectively for the best two plots of currystuffs in the Bingiriya palata competition.

Large quantities of manures have been distributed through societies to their members. A local firm of hardware merchants have supplied barbed wire, staples, and mamoties.

List of Goods supplied in 1926.

Name of Society.	Manures.		Barbed Wire.		Staples.		Mamoties.		Total Value.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	No.	Value.	
	Tons cwt. qr. lb.	Rs. c.	Tons cwt.	Rs. c.	Cwt. lb.	Rs. c.		Rs. c.	Rs. c.
Pussella ..	0 10 0 0*	60 80	—	—	—	—	—	—	—
Marawila ..	8 11 1 18	1,170 35	—	—	—	—	—	—	—
Pilessa ..	0 4 0 0	32 3	—	—	—	—	—	—	—
Nainamadama ..	14 13 1 14	2,057 87	—	—	—	—	—	—	—
Bingiriya palata ..	2 0 0 0	305 21	—	—	—	—	—	—	—
Atamune ..	0 8 0 0	55 44	—	—	—	—	—	—	—
Watareka ..	0 2 0 0	13 36	—	—	—	—	—	—	—
Kumbukwewa ..	0 1 2 0	10 2	0 9½	104 50	—	—	26	44 96	—
Meetanwela ..	—	—	0 10½	131 25	0 21	4 20	—	—	—
Ehetuwewa ..	—	—	0 35	379 50	2 0	40 0	26	48 40	—
Total ..	24 10 1 4	3,705 8	2 15	615 25	2 21	44 20	52	93 36	4,457 89

* Bone meal.

Government Loans.—The Demala hatpattu and Hiripitiya Societies have repaid one instalment each of Rs. 150 and Rs. 100, with interest respectively. Payments of other loans are not yet due.

The purposes for which loans have been granted during the year were as follows :—

Repayments of loans taken at high rates of interest ; releasing of mortgages on property ; purchasing, clearing, and cultivation of coconut and paddy land ; purchasing carts and bulls ; building houses ; burning lime ; making bricks and tiles ; buying fishing nets, thread, and boats ; trade in copra, currystuffs, paddy, kurakkan, coconut, straw, and firewood ; purchasing a camera and manufacturing ærated water; cultivating tobacco ; buying seed paddy, manure, and barbed wire, and so forth.

Much progress has been made in the past year. Number of members, paid up share capital, amount of loans given, and the reserve funds of all societies have considerably increased over those of 1925.

The Joint Registrar of Co-operative Societies inspected the books of the societies in the division and addressed the members on the work of their societies. The areas of operations of some societies have been found to be too large for efficient work, and steps have been taken to split up these into smaller societies. Meetings have been held fairly regularly. Members of societies have taken greater advantage of the supply, on credit, of manures, barbed wire, and agricultural implements, and seed paddy which they would otherwise have not been able to secure. The Agricultural Instructors have attended meetings and have helped in the work of all societies.

The Joint Registrar's instructions to societies are being carefully followed. Applications for loans are carefully inquired into, and sureties have been instructed to find out whether loans have been applied for the purposes for which they were taken and instalments paid regularly. Steps have been taken to recover all overdue loans.

To induce the honorary secretaries to take a keener interest in the affairs of a society and to work wholeheartedly for its progress, Mr. Tudor Ranasinghe, J.P., U.P.M., is offering a cash prize of Rs. 50 to the honorary secretary of the most progressive society in the Chilaw District for the working year, 1926–1927.

G. E. JAYATILEKE HULUGALLE,
Divisional Agricultural Officer and Assistant Registrar of Co-operative Societies, North-Western Division.

January 26, 1927.

AGRICULTURAL INSTRUCTORS CONTROLLED FROM HEAD OFFICE PENDING FURTHER DECENTRALIZATION.

WESTERN PROVINCE.

THE following extracts are taken from the report of Mr. D. T. J. Weerasuriya, Agricultural Instructor, Veyangoda:—

Every endeavour was made during the year to educate the goiyas and other agriculturists in the district on co-operation and improved methods of paddy cultivation.

It is very encouraging to find that several cultivators have realized the value of improved methods, and they have actually put such methods into practice on their own lands, *e.g.*, application of green manures, transplanting of paddy, weeding, &c.

Transplanting of paddy was done in the following villages :—Helakandana, Hunumulla, Hapugahagama, Tamitta, Waduruwa, Mottunna, Bellumahara, Miriswatta, Dambuva, Talangama, Boralesgamuwa, and Unagasdeniya.

Paddy cultivation competitions have been arranged in the Siyane korale east with the generous assistance of the Mudaliyar Obeysekara.

The number of entries for the 1926 paddy cultivation competition organized in the korale bears testimony to its success.

Other Competitions.—Besides the paddy competition there are garden competitions, viz., (1) yam cultivation, (2) betel vine cultivation, (3) pineapple cultivation (4) plantain cultivation.

Shows.—An Agricultural and Industrial Show was held at Pugoda in Siyane korale east in conjunction with the above garden competitions.

Out of the four garden competitions prizes were awarded only for the yam cultivation, as that only was ready for the final inspection at the time of the Show.

The final inspection of the other cultivations was postponed for the next year when they will be in full bearing.

Paddy Experiments.—Experiment with pure-line are being carried out at the paddy station at Bellummahara, one of the minor stations recently opened.

The pure-line strains which are being tried here have been selected from the paddies sent from the district some-time back.

The work at this station is divided into three sections, and each section is allotted for a different purpose, viz., (1) multiplication, (2) testing, (3) experimental purposes. In the first section the following pure-lines have been sown for the purpose of multiplying with the local mavi, viz., H 22, F 7, B 13, G 1, G 3, and mavi. These varieties were sown in a field worked according to the local methods in vogue.

In the second section small quantities of the seeds used for multiplication have been sown in small plots of equal size whose dimensions are 30 feet by 7 feet, leaving 1 foot between each plot and 4 feet from the ridges for the porpose of testing the pure-lines.

Each of the above strains is replicated six times with a view to measuring the errors which are likely to happen due to different soil conditions, tillage, origin of seed, and the like.

All the series were confined to a definite liyadda or plot, and care was taken not to transfer one part of a series to another liyadda. If there was no adequate space for a complete series in such cases the whole series is laid out in a separate liyadda.

In the third section there are the Rod Row experiments. The work in this section is quite different from the work in the first two sections, and it is conducted on a scientific basis.

The following varieties are being experimented with, viz., 4 W P 1—4 W P 20 and local maha mawi.

These seeds were first sown in different nurseries. When the seedlings were seven weeks old they were transplanted in small plots whose dimensions are 15 feet by 6 feet at 6 inches apart in 5 rows leaving 6 inches between each row and a path 4 feet wide between each plot. To ensure accuracy in planting the seedlings at equal distance a wood frame called the Rod Row pole was used.

Each of these small plots received 150 plants and each variety was replicated six times, making a total of 126 plots for the whole section.

As in the previous case, the series were confined to one definite liyadda taking care not to transfer a part of a series to another liyadda. These plants are regularly watered and the plots are kept free from weeds.

The object of opening this station and the nature of the work done at this station were explained to the neighbouring cultivators. They were very much interested in this useful work by the Department.

Demonstrations.—(1) Transplanting demonstrations were given at three different places in the district, viz., Mottunnua, Waduruwa, and Bellummahara.

As a result of the demonstrations the cultivators round about these plots are trying the transplanting of paddy.

The area transplanted round about these three places is about six acres.

(2) A demonstration was given at Bellummahara with an imported harrow, viz., the Burmese harrow.

It worked very satisfactorily on average soils and the performance of this new implement was appreciated by the cultivators who were present at the demonstration.

Diseases.—There were hardly any pests or diseases of the major products this year. Unfortunately for the poor cultivators the betel leaf disease was prevelent and the gardens were badly attacked, especially in Siyane korale east.

Specimens of the diseased plants were sent to the Mycologist for investigation.

The advice and the instructions received were conveyed to the betel growers.

In addition to the advice given, leaflets on the betel leaf disease were distributed in all the villages from where the disease was reported.

In conclusion, I beg to state that the encouragement given to the cultivators in the korales by way of organizing competitions for different cultivations proved even more effective than the Shows held in the korale.

Province of Sabaragamuwa.

The following extracts are taken from the report of Mr. A. Madanayake, Senior Agricultural Instructor for the Ratnapura District :—

Cultivation Duties.—The Agricultural Instructors stationed at Godakawela and Balangoda continued to attend to cultivation duties under major irrigation works at Hingura-ara, Embilipitiya, Tunkame, Walalgoda, Maduwanwela, Wellawa, Beliatta, Malwatta, Kaltota, Kinchigune, Mulgama, and Opanake, in addition to their duties.

Paddy.—Paddy cultivation in this district was supervised by the Agricultural Instructors with the co-operation of agricultural headmen. There is now much improvement in the clearing of elas, water-courses, &c.

Demonstrations in manuring, weeding, transplanting, and seed selection were held in Nawadun Kuruwiti, Atakalan, and Kadawata and Meda korales and have been successful.

Trials with Pure-line Types of Paddy Varieties.—4½ acres of paddy land at Batugedara and 6 acres at Godakawela were taken on lease by Government for trials, the former for maha varieties and the latter for yala varieties.

Of the yala varieties of pure-lines Hb-8, Hb-3, Hd-5, Hd-15, and Hd-1 tried at Godakawela, Hd-1 and Hb-8 have given better results than the others. The paddies are stored for distribution.

Maha varieties of pure-lines, R-11, U-8, W-15, G-3, and G-9 were tried at Batugedara Seed Paddy Station and good results are expected.

The pure-line varieties F-14, G-1, H-22, K-32, and R-11 introduced into Ratnapura during 1922–23, maha showed results over local mawi. In 1923–24 the yields were not recorded as the crops were partly damaged by floods. Care, however, was taken to preserve sufficient quantities of seed paddy for the next sowing.

In 1924–25 maha, F-14, G-1, and H-22 were entirely damaged at a young stage of the plants, but K-32 and R-11 progressed well. It is gratifying to mention that R-11 gained popularity at Batugedara area while K-32, in spite of the fact that it is the better yielder of the two varieties, was not popular on account of being awned.

In 1925–26 maha season, 33 bushels of R-11 named as Peradeniya Rathkunda were sown. The variety grew well, but at harvest the yield did not come up to expectations. It is, however, popular with cultivators.

In 1925–26 maha season, G-9 was tried on a field 2½ acres in extent taken on lease by Government. This variety grown alongside with local mawi showed superiority in growth over the latter varieties. It was sown a month later than mawi and took 164 days to mature, but the yield here did not come up to expectations even though it was greater than the yield of the local mawi and R-11.

The annexed return shows the list of pure-lines grown during 1926–27, maha, with names of cultivators :—

List of Pure-Line Paddies grown during Maha Seasons, 1926-27, in Ratnapura District.

Wasama.	Name of Cultivator.	Name of Field.	Extent. A.	P.	K.	Quantities sown Bushel.	Variety of Paddy.
Batugedara	G. Mohottihamy	Puwakowita	1	0	0	5	R-11
Do.	Ganithayalage Dondina	Ganithayalageowita	1	0	0	5	,,
Do.	Punchimahathmaya	Uluheliowita	0	0	6	¾	,,
Do.	Mudianse and Kaluappu	Pasdunkoralayakumbura	0	3	2	4	,,
Do.	B. Gunasekera	Mahakumbura	0	2	0	2½	,,
Do.	Mudalihamy	Aswedduma	0	2	0	2½	,,
Do.	Mudianse	Dampe	0	3	6	4½	,,
Do.	Dingirimahathmaya	Ambagahayata-aswedduma	0	0	8	1	,,
Do.	Pusumba	Gongalekumbura	0	2	4	3	,,
Do.	Government Seed Paddy Station	Withanaowita	0	1	6	2	,,
Do.	Mudalihamy	Haddegodelleliyadda	0	2	0	2½	G-9
Do.	G. Dingirimahathmaya	Mulleowita	0	1	6	2	,,
Do.	Sethuhamy	Narammala	0	0	8	1	,,
Do.	Government seed Paddy Station	Withanaowita	0	0	8	1	,,

Experimental Plots.

Balangoda Plot.—Though this garden does not permit of much improvement owing to its limited extent it was maintained well. Permanent crops consist of fruits, vanilla, and coffee varieties. Robusta and Hybrid varieties of coffee were found to be high yielding than other varieties and nurseries of these were laid out for distribution of plants.

Mango plants have been raised for grafting.

Cassava, sweet potato varieties, dioscoreas, and adlay were raised and distributed among village cultivators.

Godakawela Plot.—Cinnamon was peeled twice and the returns were very satisfactory. Cacao too gave a satisfactory yield. The vanilla was transferred to Balangoda. A section was lined out for planting budded rubber, and *Centrosema pubescens* and *Vigna oligosperma* seeds planted as cover crops. Cow-peas, Lab-lab, and Lima beans were planted in the vegetable plots as rotation crops. Varieties of Jaffna chillies were sown for trial.

Kuruwita Plot.—The construction of a set of cooly lines is completed. The opening of contour drains is nearing completion and the land will be ready for planting during the south-west monsoon. A rubber nursery with seeds received from Peradeniya Experiment Station has been laid out for the budding of rubber.

Embilipitiya Cotton Plot.—The cotton grown on this plot for the third time gave exceedingly good results. Operations commenced in August, 1925. Cambodia cotton was planted with the break of the north-east monsoon rains. The plot, which is 1½ acre in extent, gave 1,354 lb. of seed cotton showing an average of 902 lb. to the acre, which is greater than the average of the previous two years.

Cotton Cultivation by Villagers.—Nine acres were cultivated with cotton and gave an yield of 30 cwt. The cotton was bought with funds provided by the Ceylon Spinning and Weaving Mills.

Agricultural Competitions.—There were ten competitions held during the year, the prizes for which were provided by the Department. The Government Agent, as Chairman of the Food Production Committee, drafted rules governing these and gave due publication of same through his headmen.

The same series of competitions have been started again with funds provided for more awards.

SCHOOL GARDENS—COLOMBO-RATNAPURA DISTRICTS.

School Gardens.—The total number of school gardens in the Colombo-Ratnapura Districts now stands at 139, viz. :—Colombo District 80, Ratnapura District 59.

Five more in Colombo District and 2 in Ratnapura District are on the waiting list for consideration in the ensuing year.

Twenty-five school gardens in Colombo District and 17 in Ratnapura District received monetary awards and certificates from the Department. Honourable mention certificates were also granted to six school gardens in Colombo District and eight in Ratnapura District.

Muhandiram Daniel Fernando Waidyasekera Prize Competition for School Gardens in Ratnapura District.—Thirty school gardens took part in this competition.

The prize winners were :—Karandana boys' school, 1st prize, Rs. 50 ; Bambarabotuwa boys' school, 2nd prize, Rs. 30 ; Opanake girls' school, 3rd prize, Rs. 20.

A special effort has been made to improve the fruit sections of school gardens during the year by supplying plants required from the Peradeniya and Henaratgoda Botanic Gardens.

The number of home gardens has increased considerably. Sixty-six children in Colombo District and 63 in Ratnapura District received cash prizes and certificates from the Department.

EASTERN PROVINCE.

The following extracts are taken from the report of Mr. C. Canagaratnam, Senior Agricultural Instructor, Batticaloa District :—

In the year under review trials with pure strains of paddy were made both at Illupadichenai and Sengapadai Government Paddy Experiment Stations with four and three months varieties of paddy. There were six varieties tried, four during the munmari season and two during the pinmari.

All these varieties matured two weeks earlier than anticipated and from this experience it has been decided to send the seeds of prominent varieties of local paddies for isolation. Forty selections out of the two varieties of perillanel and murungakakai have been sown and are doing well. These will be multiplied next year and the most suitable type will be distributed for seed purposes for cultivators.

Seed selections work of individual plant to plant selection have been carried on and will be grown at Sengapaddi paddy experiment station.

The trials with green manures such as dhaincha and sunn-hemp were given but were not found successful due to the hot land breeze that blows over a large part of the district and secondly due to the paddy fields being used soon after harvest as pastures by the village cattle, which trample down and damage the growing plants. The question of trials of green manures in this district will have to be given a trial when pasture grounds for cattle have been earmarked.

Work with ploughing demonstration was carried out at Illupadichenai with the Meston ploughs and it was found, considering the heavy infestation of fields with weeds and the leanness of the cattle of the place, that the first ploughing in munmari fields should be given with the country plough and be followed by the Meston.

Manurial tests with steamed animal meal, fish manure, superphosphate, and bone-meal were given at 16 different places, giving an yield of 35–45 bushels per acre, and these manures had the effect of hardening stems, preventing them from lodging. The three months variety of paddy in particular gave an increased yield.

There is a great demand for free supply of manures from the cultivators while there is reluctance on their part to pay for the manures.

Experiments conducted at Illupadichenai show an increased yield of 19 bushels per acre when properly weeded and levelled, and experiments at Sengapadai show an increased yield of 16 bushels per acre when manured and weeded.

School Gardens.—At the end of last year there were altogether forty-one registered school gardens, and during the year under review five Government school gardens and three grant-in-aid school gardens were taken on the list. For the new Government school gardens the Rural Education District Committee, Batticaloa, bought implements to the value of Rs. 375, and the unserviceable garden implements have been replaced by new ones at a cost of about Rs. 100 from the departmental votes.

Currystuffs, including ginger and turmeric, have been tried in most of the school gardens and have failed to do well owing to the sandy nature of the soil and the prolonged drought. Different varieties of Jaffna yams were introduced by the Nindoor, Oteville, and Maruthamunai Government school gardens, and are doing well.

The following fruit plants were introduced into all Government school gardens, oranges, lime, Malay apple, lovi-lovi, pomegrantes, papaw, guava, mango, and bullock's heart, and Ceylon gooseberry. There is an all-round improvement in the cultivation of vegetables and other crops.

The agricultural officers teach rural subjects in most of the Government vernacular schools, and the number of schools that receive frequent instruction are about 35 in number, and the subjects dealt with are paddy, preparatory tillage, use of tools, crops, horticulture, pests of crops, &c.

The number of home gardens is on the increase, and the pupils are encouraged by awards.

Nursery Block.—Two more nursery blocks at Lahugalle and Uhana were opened to serve the needs of Panawa pattu and Wewgam pattu and to raise plants to supply with coconuts, jaks, limes, oranges, pomegranates, &c., to the residential gardens of the villagers. These are worked on the same lines as the Maha-oya nursery block in Bintenna pattu.

1,200 coconut and 2,000 jak plants, and other plants, such as limes, oranges, pomegranates, &c., were distributed. About 600 tamarind plants were also distributed in the district. 5 acres under Matara varieties of citronella were brought under cultivation and these are doing very well, each bush having about 50 to 60 shoots at an average.

It is hoped soon to instal a still for which a vote is already sanctioned, when it is expected to bring about a large amount of land now lying fallow under this crop.

Tobacco cultivation has been encouraged in the Uhana and Damana districts of Wewgam pattu, and cultivators are greatly encouraged by the profits realized.

Vegetable Garden Competitions.—There were vegetable garden competitions organized throughout the district and two prizes have been offered for each pattu. The total number of competitions was 9. In view of these competitions being organized regularly there is an increase in the cultivation of vegetable in the district.

Cotton cultivation is spreading in the remote parts of Wewgam pattu, as a mixed crop with other chena produce. About 12 acres of cotton have been brought under cultivation by Mr. S. Coomarasamy.

Pests.—There has been an increse in the incidence of pests (*Nephantis serinopa*) in coconut estates round about Vandaramullai, Akkarai pattu, and Sungankerney, and remedial measures of cutting and burning affected leaves are being carried out during the rainy season.

Shows.—Two Agricultural Shows were held in the district, one at Wewgam pattu and the other at Chengkalady, both of which were a great success.

Province of Uva.

The following extracts are taken from the report of Mr. J. A. Rambukpota, Agricultural Instructor, Bibile, who had to assume acting duties as Senior Agricultural Instructor, Badulla, at the end of the year on account of an unfortunate accident to Mr. E. W. Dias Bandaranaike:—

School Gardens.—During the year two new schools, Baladangolla and Baduluwela, were registered and implements supplied to them, and worn-out implements were replaced in the other schools. Home gardens are increasing in number and good work have been done in almost all the schools, especially in some of the remote schools.

Bibile Experimental Garden.—Special attention during the year was directed towards cotton and sugar cane cultivation. Demonstrations in cotton cultivation are being carried out every year and help and advice given to small growers. After the installation of the sugar cane mill an improved jaggery furnace was built, and the sugar cane jaggery turned out is sold locally. A pair of ccast bulls for ploughing and drawing water from the Single Mhote, and a Plant Junior Cultivator, and Ransome's All Steel Victory plough were also secured for the use of the garden. In addition to the fruit plot, plantains and pineapples, 1½ acres of ½ acre each, with groundnuts, *elwi* (hill paddy) and kurakkan have been cultivated this year. The method of cultivation adopted in this garden is that of rotation of crops. The cultivators of Wellassa and Bintenna divisions have been greatly benefited by the experiments carried out in this garden. The steady increase in the cultivation of cotton in these two divisions is due to the demonstrations carried out here. Seed whenever available and manioc and sugar cane cuttings are being distributed free to cultivators.

Meegahakiula Experiment Garden.—It was decided to close this down, owing to the climate not being suitable for cotton.

Paddy Manurial Experiments.—Experiments with fish guano, sterilized animal meal, bone meal, and ephosphosphate were carried out at Badulla, Welimada, Bibile, Lunugala, Bandarawela, Kumbalwela, Kalupahana, and Uda Kumbalwela. The results showed that sterilized animal meal gave the best results.

It is proposed to have another station at Welimada to test paddies, and it is to be opened shortly in addition to the one at Badulla.

Agricultural Shows and Competitions.—Two district Shows, one at Taldena and the other at Bandarawela were held. The Show at Bandarawela proved a great success. It was the first of its kind ever held in that locality. A large balance was shown and there are hopes of another coming off this year. The Taldena Show was on a much smaller scale. The chief drawback was its being held when the drought had set in, but still it served a useful purpose.

Prizes were given for the best transplanted or thinly sown and weeded paddy fields in each of the Ratemahatmaya's divisions, and for the two best cotton, sugar cane, and vegetable plots. These were keenly competed for—the largest number of transplanted paddy fields being in Wellassa and Yatikinda divisions.

Cotton Cultivation.—Cotton was grown at the following places:—Meegahakiula and the surrounding villages Soranatota and Beramada in Wiyaluwa division; Bodagama and the surrounding villages in Wellawaya division; and Dambagalla, Kura-ambe, Hewelwela, Bibile, Kawdella, and Molandeniya in Wellassa division. In all 124 bags weighing 49 cwt. 1 qr. 26 lb. were sold in Colombo for Rs. 1,262 at Rs. 21·50 per cwt. There was a great demand for cotton seed for September–October planting, and about 900 lb. of seed was distributed free among cultivators. In the Wellassa and Bintenna divisions alone about 100 acres have been planted under cotton. This industry will become established in lower Uva if the present efforts are continued.

VIII.—REPORT ON THE WORK OF THE PUBLICATION DEPÔT AND CENTRAL SEED STORE.

The year just closed has been one of greater activity than any previous year, both in regard to publications as well as seed distribution, as is disclosed in the record outturn of Rs. 41,691·47, as compared with Rs. 31,439·90 in the previous year.

Subscribers have increased by 61 during the year, and the total collections on publications represent Rs. 20,227·38 as against Rs. 18,126·97 the preceding year; while the balance Rs. 21,464·09 represents value of seeds as against Rs. 13,312·93 in the previous year.

The increase in the volume of work is indicated by the financial results above shown, and I must here record the ready co-operation and assistance rendered by the staff, involving much overtime duties. Without such willing assistance, it would have been impossible to cope with the work.

Numerous demands and inquiries continue to come from all parts of the Island as well as from abroad for different varieties of seeds. Persistent demands for green manure and cover crops recently brought into prominence have continued throughout the year in considerably larger quantities, while shade and leguminous trees are also much sought. The demand for vegetable seeds (51 varieties) and flower seeds (39 varieties) is increasing every year, applications arriving daily from estates as well as small cultivators. Fruit cultivation also appears to have become more popular, judging from the applications dealt with.

The demand for cotton has been about the same as in the previous year outside the Hambantota area, whose requirements were dealt with by the local Divisional Agricultural Officer. Chilli seed and currystuffs were in greater demand, as also flower and fruit tree seeds; more than 50 per cent. over last year's was requisitioned in grafted plants; there was some demand for jak seeds and greater demands for pineapple suckers and other cuttings. Demand for rubber seeds was abnormal,

more than double the quantities available at the Experiment Stations, Peradeniya and Henaratgoda, and at the Royal Botanic Gardens having been booked. Tea seed was also in demand and applicants were assisted in meeting their requirements.

The following is a statement of distribution :—

	Bushels.	Pounds.	Packets.	Number.
Adlay	9	—	50	—
Bilimbi	—	—	—	1,800
Castor	—	11	—	—
Chilli	—	222¾	903	—
Coffee	—	2½	—	—
Cotton	—	3,024¾	—	—
Currystuffs	—	17	1,553	—
Dhall	—	134	—	—
Flower seeds	—	¾	4,220	—
Fruit tree seeds	—	—	—	567
Garlic	—	46	—	—
Ginger	—	98½	—	—
Grafted plants	—	—	—	607
Grass seeds	—	1¼	—	—
Green manure	—	7,161	—	—
Groundnuts	—	364¼	—	—
Jak seeds	—	—	—	1,360
Kapok	—	37	—	—
Madras thorn	—	169½	—	—
Maize, sorghum, &c.	½	313½	—	—
Paddy	26½	—	—	—
Papaw	—	22¾	—	—
Soy bean	—	201	—	—
Suckers and cuttings	—	—	—	6,685
Tamarind seeds	—	—	—	6,500
Timber and shade tree seeds	—	220¾	—	62
Tobacco seeds	—	1	—	—
Turmeric	—	45½	—	—
Vegetable seeds	—	102¾	20,943	—
Yams, artichoke, &c.	—	49	—	—
	36	12,246½	27,669	17,581

Forty-six applicants received 607 grafted plants, the varieties including :—

Fig, guava (3 varieties), jak, lemon (2 varieties), litchi, loquat, mandarin (2 varieties), mango (7 varieties), orange (7 varieties), pomegranate (5 varieties), pomelo, rose-apple, and sapodilla.

All varieties of seeds are tested for germination before issue and this work is regularly done in the two imported testors. The leaflet on sowing and preserving seeds is distributed with each outgoing parcel.

PUBLICATIONS.

A fair increase in the number of subscribers has to be recorded with substantial improvement in revenue.

The Ceylon Advertising and General Publicity Co. of 33 and 34, Chatham street, Colombo, have entered into a contract for a further period in regard to advertisements.

The *Annals* of the Royal Botanic Gardens published at present as a section of the *Ceylon Journal of Science* is now available at a published price per volume instead of by annual subscription. The following is a list of publications :—

Title.	Annual Subscription. Local. Rs. c.	Annual Subscription. Foreign. Rs. c.	Single Copy. Local. Rs. c.	Single Copy. Foreign. Rs. c.
"Tropical Agriculturist"	10 0	15 0	1 0	1 25
Annals (per volume)	8 0	10 0	3 0	3 0
Bulletins	1 0	2 50	0 15	0 40
Do. from No. 73 onward	—	—	0 25	0 40
Circulars (old issues)	—	—	0 15	0 40
"Govikam Sangarawa" (Sinhalese)	0 50	1 0	0 6	0 15
"Kamat Tholil Velakkam" (Tamil)	0 50	1 0	0 6	0 15

Special Centenary Edition of the Royal Botanic Gardens, Peradeniya, bound in Morocco leather, Rs. 5 each.

FINANCIAL.

For both publications and seeds the total revenue collected during the financial year 1925–26 is Rs. 41,691·47 made up as follows :—

	Rs. c.	Rs. c.
Publications		20,227 38
Seeds and plants	17,041 58	
Do. value of free distribution	4,422 51	
		21,464 9
Total		41,691 47

J. S. DE SILVA,
Manager, Publication Depôt and Central Seed Store.

Peradeniya, January 24, 1927.

IX.—REPORT ON THE WORKING OF CO-OPERATIVE SOCIETIES.

The year under review has seen more consolidation than expansion of the work of co-operative societies. Mr W. K. H. Campbell, C.C.S., returned from his tour in India and Europe and assumed duties as Joint Registrar. He is engaged in making an all-Island inspection of societies. Three new Inspectors were added to the staff and the present strength of the Inspectorate is six.

A satisfactory increase has been made in the number of the societies, more share capital has been collected, membership has increased, and more transactions in loans have taken place. The recovery of loans has been more satisfactory in the year under review than the previous year, but it is still far from what it should be. The demand for knowledge of co-operative societies is increasing and the training classes and the district conferences are becoming more and more popular. The funds of the reserve funds of the societies have increased.

General Progress.

Societies.—Forty new societies have been registered and the registration of ten societies have been cancelled during the year under reveiw. The total number of societies at the end of the year was 329, showing an increase of 30 against the previous year.

Members.—The total number of members of all the societies at the end of the year was 37,425, showing an increase of 3,795 against the previous year.

Capital.—The amount of paid-up capital of all societies at the end of the previous year was Rs. 333,295·12, and the amount at the end of the year under review stood at Rs. 423,613·88, showing an increase of Rs. 90,318·76 for the year.

Deposits.—The amount of deposits at the end of the year was Rs. 60,125·20, and the figures for the previous year were Rs. 31,853·88. The increase for the year is Rs. 28,291·32.

Reserve Fund.—The Reserve Fund has increased by Rs. 8,021·40, and the total amount at the end of the year stood at Rs. 73,183·39.

Loans.—In the year under review Rs. 509,555·93 have been lent to members, Rs. 387,913·65 have been recovered, and a sum of Rs. 619,876·49 was outstanding. The recoveries were not satisfactory.

Progress in the Provinces.

Southern Province and Kalutara District.

(Forming the Southern Division.)

Mr. G. Harbord, Assistant Registrar, Southern Division, reports as follows with regard to the work in his division during the year :—

The total number of societies in the division at the end of 1926 was 77, as against 78 for 1925, viz., a decrease of 1. During the year 3 new societies were registered, namely, Godauda-Kottagoda, Galle Kulangana, and Labuduwa-Godakanda Societies. The registration of 4 societies was cancelled, viz :— Akuretiya, Galle Christians, Urubokka, and Godauda-Kottagoda Societies and 11 other societies (all in Kalutara District) were noted for early liquidation.

Particulars relating to all the societies together with their distribution are given below :—

District.	Number of Societies.	Total Number of Members on December 31, 1926.	Paid-up Share Capital on December 31, 1926.	Loans granted during 1926.	Loans recovered during 1926.	Loans outstanding on December 31, 1926.	Deposits on December 31, 1926.
			Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.
Kalutara	31	5,017	32,707 65	14,617 0	12,630 57	31,510 31	1,017 1
Galle	23	3,554	29,339 25	16,511 32	12,769 7	19,165 7	208 13
Matara	18	3,710	30,849 55	21,968 39	26,419 15	23,385 60	2,324 84
Hambantota	5	1,093	5,699 50	1,053 74	2,960 58	4,978 52	—
	77	13,374	98,595 95	54,150 45	54,779 37	79,039 50	3,549 98

In the Galle District 9 societies are working actively, viz., Thelikadapalata, Heenatigala, Elpitiya, Dodanduwa, Ganegama, Labuduwa-Godakanda, Batapola, Pahalagamhaya and Galle Kulangana Societies. Nine are showing no progress, 4 are defunct, 1 has suspended its loan applications until the bad overdues are recovered, 2 have been liquidated.

In the Matara District 10 societies are active and continue to make progress, they are : Matara Wellaboda pattu, Matara Gangaboda pattu, Madiha, Matara Kandaboda pattu, Yatiyana, Kamburugamuwa, Weligama, Matara, Thelijjawila, and Akuressa Societies. Seven have shown very poor progress, 1 is defunct, 2 have been liquidated.

In the Hambantota District 4 societies are doing good work, 1 is about to be liquidated.

In the Kalutara District 8 societies are doing active and useful work, 6 are doing fairly well and shows signs of early improvement, 6 have suspended business until the bad overdues have been recovered, 11 have been noted for liquidation.

Supervision.—During the year particular attention has been given to the recovery of overdue loans—and considerable progress in this direction has been made. All the societies were visited twice at least by the Inspector and more frequently by Agricultural Instructors.

Manure.—Only 6 societies have had dealings in manure during the year—total quantity distributed was 17¾ tons costing Rs. 2,190·40, which is a decrease on the business done last year.

Government Loans.—No society received loans from Government during the year. A sum of Rs. 11,405 on acount of loans granted in previous years is outstanding against 17 societies.

Training Classes were not held during the year under review.

Agricultural Competitions.—Competitions in paddy cultivation and vegetable gardening confined to members of societies in Galle District were held during the year. There were 168 entries.

North-Western Province.

(Forming North-Western Division.)

Mr. G. E. J. Hulugalle, Assistant Registrar, North-Western Division, reports as follows :—

There are 29 registered societies in the division. Classes for the training of office-bearers were held on August 30, 31, and September 1. The Hon. Mr. G. E. Madawala, M.L.C., opened these classes and presided at the first and second sessions. The Registrar of Co-operative Societies and Mr. T. B. Madawala presided on the second day, and Mr. Suraweera on the third day. Mudaliyar Wickremaratne conducted these classes. Papers on the progress of their societies were read by the Secretaries of Wariyapola, Mahagalboda Megoda Dakuna, Bogamuwa, Pilessa, Nainamadama, and Horombawa Societies.

There was a very large number of office-bearers and members of societies and of the general public present. The following statement shows the membership and financial position of societies as compared with the last year :—

	Number of Members.	Paid-up Capital,	Loans granted.
		Rs. c.	Rs. c.
1925 ..	2,430 ..	20,875 4 ..	27,289 98
1926 ..	2,980 ..	32,751 5 ..	46,402 0

	Loans recovered.	Loans outstanding.	Deposits.
	Rs. c.	Rs. c.	Rs. c.
1925 ..	10,695 93 ..	22,525 2 ..	—
1926 ..	34,270 47 ..	34,674 55 ..	1,514 30

The following agricultural competitions were organized by the members of Co-operative Societies :—

(1) Nikaweratiya Paddy Cultivation Competition, Yala, 1926.
(2) Atamune Paddy Cultivation Competition, Yala, 1926.
(3) Atamune Transplanting Paddy Cultivation Competition, Yala, 1926.
(4) Bogamuwa Paddy Cultivation Competition, Yala, 1926.
(5) Ehetuwewa Paddy Cultivation Competition, Yala, 1926.
(6) Bingiriya Palata Currystuffs Cultivation Competition.
(7) Watareka Palata Currystuffs Cultivation Competition.

Messrs. Adamjee and Lukmanjee and Mr. E. J. Samarawickrema, advocate, have offered a gold and silver medal, respectively, for the best two plots of currystuffs in the Bingiriya palata competition.

Large quantities of manures have been distributed through societies to their members. A local firm of hardware merchants have supplied barbed wire, staples, and mamoties.

List of Goods supplied in 1926.

Name of Society.	Manures.		Barbed Wire.		Staples.		Mamotties.		Total Value.
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	No.	Value.	
	T. cwt. qr. lb.	Rs. c.	T. cwt. qr.	Rs. c.	Cwt. qr. lb.	Rs. c.		Rs. c.	Rs. c.
Pussella ..	0 10 0 0	60 80	—	—	—	—	—	—	—
Marawila ..	8 11 1 18	1,170 35	—	—	—	—	—	—	—
Pilessa ..	0 4 0 0	32 3	—	—	—	—	—	—	—
Nainamadama ..	14 13 1 14	2,057 87	—	—	—	—	—	—	—
Bingiriya Palata ..	2 0 0 0	305 21	—	—	—	—	—	—	—
Atamune ..	0 8 0 0	55 44	—	—	—	—	—	—	—
Watareka ..	0 2 0 0	13 36	—	—	—	—	—	—	—
Kumbukwewa ..	0 1 2 0	10 2	0 9 2	104 50	—	—	26	44 96	—
Meetenwela ..	—	—	0 10 2	131 25	0 0 21	4 20	—	—	—
Ehetuwewa ..	—	—	1 15 0	379 50	2 0 0	40 0	26	48 40	—
Total ..	24 10 1 4	3,705 8	2 15 0	615 25	2 0 21	44 20	52	93 36	4,457 89

Government Loans.—The Demala hatpattu and Hiripitiya Societies have repaid one instalment, each of Rs. 150 and Rs. 100 with interest respectively. Payments of other loans are not yet due.

The purposes for which loans have been granted during the year were as follows :—

Repayments of loans taken at high rates of interest, releasing of mortgages on property. Purchasing, clearing, and cultivation of coconut and paddy land. Purchasing carts and bulls. Building houses, buring lime, making bricks and tiles, buying fishing nets, thread, and boats. Trade in copra, currystuffs, paddy, kurakkan, coconut, straw, and firewood. Purchasing a camera and manufacturing aereated water, cultivating tobacco, buying seed paddy, manure, and barbed wire and so forth.

Much progress has been made in the past year. Number of members, paid-up share capital, amount of loans given, and the reserve fund of all societies have considerably increased over those of 1925.

The Joint Registrar of Co-operative Societies inspected the books of the societies in the division and addressed the members on the work of their societies. The areas of operation of some societies have been found to be too large for efficient work, and steps have been taken to split these into smaller societies. Meetings have been held fairly regularly. Members of societies have taken greater advantage of the supply on credit of manures, barbed wire, and agricultural implements, and seed paddy which they would otherwise have not been able to secure. The Agricultural Instructors have attended meetings of societies and have helped in the work of all societies.

The Joint Registrar's instructions to societies are being carefully followed. Applications for loans are carefully inquired into, and societies have been instructed to find out whether loans have been applied for the purposes for which they were taken and instalments paid regularly. Steps have been taken to recover all overdue loans.

To induce the honorary secretaries to take a keener interest in the affairs of a society, and to work wholeheartedly for its progress, Mr. Tudor Ranasinghe, J.P., U.P.M., is offering a cash prize of Rs. 50 to the honoary secretary of the most progressive society in the Chilaw District for the working year 1926–1927.

Northern Province and Trincomalee District.

(*Forming the Northern Division.*)

Mr. W. P. A. Cooke, Assistant Registrar, Northern Division, reports as follows :—

The Joint Registrar visited 39 societies in this division, and the Assistant Registrar visited 33 societies and accompanied the Joint Registrar to visit 16 societies. The Inspector visited all the societies during the year.

The number of societies in the division at the end of the year 1926 is 51. Thirteen new societies were registered during the year, viz :—

Jaffna District.—Changanai West, Islamiah, Analaitivu, Myliddy, Hindu Organ, Limited, and Hindu College, Limited.

Trincomalee District.—Tamblegam, Sinnakenniyai, Sambaltivu, Kuchchaeli, Muthur, Sampur Topur.

No society was cancelled, all the societies are working.

The societies in the division are distributed as follows :—

	Societies.
Jaffna District	34
Mannar District	5
Mullaittivu District	4
Trincomalee District	8
	51

These societies could be classed under the following heads :—

Agricultural 41, Industrial 1, Seed supply 1, Societies for teachers 4, Fishing and minor trade 3, and Headmen's Training Society 1.

Out of the 51 societies, 48 are of unlimited liability and 3 are of limited liability.

The following societies have done good work :—

American Mission Agents, Tholpuram-Moolai, Karaveddi, Pandaterippu, Tellippallai, Kopay, Valvettiturai, Vavuniya South Sinhalese Division, and Sorampattu-Masar.

The progress of the societies in this division is fair and the failure to settle the debts by members on due dates still remains an obstacle towards progress of societies in general.

It is a very encouraging sign to record the addition of 13 new societies in the division as compared with 11 new societies for the previous year and 2 for 1924, and to state that all of them have started work. Inquiries are received from several villages to organize Co-operative Societies, but more time is given to the members to study the principles of co-operation before registering.

The hand of the money lender appears behind every cultivator society. He does all in his power to impede the progress or the functioning of Co-operative Societies.

There are some villages where the money lending was practiced on a partriarchal form. In such villages Co-operative Societes are welcomed and work starts almost immediately on registration.

In some cases the members invest all the fluid money on cultivation and wait for a Government, loan] to find sufficient capital. Facilities are now offered to grant Government loan soon after the registration of a society.

Government loans totalling Rs. 19,500 were granted to 13 societies in this division, as compared to Rs. 14,000 to 9 societies in 1925.

The applications for Government loans of the following societies are under consideration :—

Talaimannar (2nd loan), Kuchchaveli, Iranamadu, Vavuniya South Tamil Division (2nd loan), and Neervely.

The applications for registration of Alway West and Murunkan Wesleyan (the proposed new societies) are under consideration.

The appended figures give an idea of the working of the societies in this division :—

(1) Numbers of members : 4,683.

	Rs.	c.
(2) Paid-up capital	86,993	53
(3) Loans granted	166,007	49
(4) Loans recovered	111,401	76
(5) Loans outstanding	169,099	72
(6) Deposits	29,877	9
(7) Reserve Fund	14,463	9

(In Bank : Rs. 6,896·56.)

The Poonakeri Grain Bank that supplies seed paddy to its members have the following figures :—

Membership : 64.

	Bush.	Ms.
Capital	617	22
Loans given	730	25
Loans recovered	737	$2\frac{1}{2}$
Loans outstanding	1,056	$11\frac{3}{4}$
Reserve Fund	91	18

Central Province and Kegalla District.

(*Forming the Central Division.*)

The post of Assistant Registrar was vacant during the year. Four new societies were registered and the registration of 1 society was cancelled. The number of societies at the end of the year was 49, with a membership of 5,707. The demand for Co-operative Societies in the division is increasing. Mr. S. B. Yatawara, Inspector of Co-operative Societies of the division, supplies the following figures which show the financial position of the societies at the end of the year :—

Paid-up Capital.	Loans granted.	Loans recovered.	Loans outstanding.	Deposit.
Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.
56,285 50 ..	55,501 84 ..	36,166 75 ..	49,358 52 ..	1,329 39

Colombo District (*Western Province*).

Four new societies were registered during the year and the number of societies at the end of the year was 29. All the Societies except 4 have made progress. The Government Printing Office Co-operative Society and its Provident Fund have proved of utmost use to its members. The Government Minor Employees Society which was started during the year under review has made a good start. The Colombo District Co-operative Union has adopted a definite programme of work which will no doubt be of great assistance to all societies in the district.

Batticaloa District (*Eastern Province*).

The Government Agent, Eastern Province, continues to interest himself in the movement which is gaining ground in the district. The number of societies at the end of the year was 53, with a membership of 1,791. The following figures supplied by the Government Agent will show the financial position of the societies at the end of the year :—

	Rs. c.
Paid-up capital	30,897 0
Loans granted	27,169 55
Loans recovered	34,282 18
Loans outstanding	111,691 4

The paddy bank which is the main financial agency of the societies has lent during the year Rs. 24,468·72.

North-Central Province.

Three new societies were registered during the year and the registration of 2 societies was cancelled. The total number of societies at the end of the year was 13. All these socieites are worked by the villagers. There is a demand for Co-operative Societies in the Province and the villagers require considerable amount of instructions on the working of societies before societies are started.

Mr. Italwetunawewa of the local Kachcheri who was appointed supervisor of the Co-operative Societies in the Province died in March, and Mr. W. L. B. Bulankulame of the same Kachcheri succeeded him.

Province of Uva.

One new society was registered and the number of societies at the end of the year was 8. The new society has started work. The societies in Wellassa have continued their work. The work of the other societies has not been satisfactory. The Uva Society has been noted for cancellation of its registration. It has been proposed to split the existing societies in the Wellassa division into a large number of societies taking a wasama as a unit.

Ratnapura District (*Province of Sabaragamuwa*).

There are 7 societies in this district. The Godakawela Society has made striking progress during the year. The Balangoda Society has also made some progress. The Kendangamuwa Society which has been dormant for some time has been revived and new office-bearers appointed. The working of the rest of the societies has not been satisfactory.

GENERAL.

Financial Assistance from Government.—Twenty four societies have been given a sum of Rs. 52,000 on loan by the Local Loans and Development Commissioners. Rs. 6,185·54 has been paid back by the societies during the year under review. Two societies failed to pay their instalments at due date. Rs. 142,715·12 was outstanding on account of Government loan at the end of the year.

Supply of Manure and other Agricultural Requisites.—The supply of manures to Co-operative Societies through the Registrar has again fallen. Only 65 tons 17 cwt. 2 qr. and 10 lb. costing Rs. 8,873·65 have been supplied during the year under review. The number of societies which sought the aid of the Registrar for supply of barbed wires and agricultural requisites has on the other hand increased during the year.

The supply of stores to its members has been continued by 2 societies, and the supply of paddy by several societies. The progress in this connection has not been very encouraging.

Agricultural Competitions.—The organizations of Agricultural Competitions by the societies has been on the increase. The North-Western and the Southern Provinces take the lead. The Brito-Babapulle Gold Medal for paddy cultivation has been offered for competition among the members of Co-operative Societies in the Colombo District.

Disputes.—The late Secretary of the Witiyala Society has disappeared from the village with a sum of money belonging to the Society. The Registrar held an inquiry and the matter is handed over to the C. I. D. for investigation. The late Secretary of the Makulla Society has been charged before the Police Court, Badulla, for alteration of certain items in books and misappropriation of money.

Co-operative Education, Conferences, &c.—The classes for the training of honorary secretaries, treasurers, and other honorary workers have been held in Kandy, Kurunegala, Kegalla, and Anuradhapura during the year. The classes at Kurunegala were the largest attended classes ever held in the Island, nearly 300 to 400 people attending the classes. These classes are proving to be useful. Lectures on co-operation to the students at the Farm School, Peradeniya, by the Assistant to Registrar, and at Jaffna by the Inspector, Northern Division, were continued. The vernacular magazines and leaflets on co-operation have been supplied free.

N. WICKRAMARATNE,
Assistant to Registrar.

X.—REPORT OF THE DIVISION OF SYSTEMATIC BOTANY.

General.

The office in the Royal Botanic Gardens formerly occupied by the Director of Agriculture was taken over and furnished.

Botanical specimens sent in for identification numbered 801. Ninety-five specimens were sent to Kew for determination, 8 to New York, and 1 to Madras. The determinations of many of these, which were mostly form the Botanic Gardens, have not yet been received.

Botanical specimens and seeds were sent to the following places abroad Kew, Harbin, Cambridge (England), Karachi, and Washington.

Visits were made by the staff to Haragama, Hunasgiriya, Rangala, Knuckles, Polonnaruwa, Mannampitiya, Kantelai, Dambulla, Anuradhapura, Hakgala, Karawita Kande, Lagalla, Henaratgoda, Gartmore (Maskeliya), Ambepussa, Colombo (Dairy Farm), Madugoda, Galle, Morakanda (Galagedara), Gampola, Kandy, Kitulete, Demodera, and Kalugammana. Especial attention was paid to weeds and grasses, and an attempt made to ascertain the Tamil names of the weeds commonly met with on estates.

Forty-six drawings of plants were completed by the draughtsman during the year.

Herbarium.

Two hundred and twenty-six sheets were added to the Ceylon herbarium and 36 to the gardens herbarium.

The collection of Algae loaned to the Prof. Svedelius in 1911 was returned. The Algae collection of the general herbarium was mounted and laid in. Part of the collection of Sterculiaceae loaned to Prof. Winckler in October, 1913, was returned.

Museum.

The lower cupboards of two show cases were converted into cabinets for the seed collection. 10,545 copies of the T. A. kept in these cupboards were tied up in bundles according to their months and years and some sent to the Publications Depôt.

One hundred and fifty specimens of drugs and 115 seeds and fruits were replaced with new specimens.

Some surplus exhibits (mostly cotton) were sold by auction at the Experiment Station.

Hakgala Herbarium.

The Hakgala herbarium was inspected in May. The weather did not permit of much work in the garden there.

A. H. G. ALSTON,
Systematic Botanist.

XI.—REPORTS ON THE WORK OF BOTANIC GARDENS.

ROYAL BOTANIC GARDENS, PERADENIYA.

Improvements on a larger scale than hitherto have been undertaken during the year. The systematic collections in the gardens have been well maintained and additions made, whilst the floricultural section and the landscape features of the Gardens have been given particular attention, and much labour has been absorbed in this work throughout the year.

Arboretum.

The increased attention and labour utilized in the Arboretum this year in conjunction with that of the previous year is beginning to have a marked effect in the general appearance of this part of the gardens and correspondingly in the value of the collections here established and in formation. The area cleared last year for the extension in the order Dipterocarpeae has been planted up with representatives of the Doon, Hal, Hora, and Mendora among others, and all are growing well. The most interesting of the new introductions, re-introductions or replantings put out in their respective groups in the Arboretum include *Buckinghamia celsissima* F. M., *Ceiba Burchellii* K. Sch., *Chorisia insignis* H. B. &. K., *Dalbergia assamica* Benth., *Derris elliptica* Benth., *Tecoma spectabilis* Planch and Lindl., and *Mucuna Kraetkei* Warb.

Palmetum.

The area occupied by the palmetum in South Gardens is being extended annually and now form a most representative collection. The new additions put out during the past year include among others, *Arenga undulaefolia* Becc., *Attalea Cohune* Mart., *Cocos eriospatha* Mart., *Eugeissona triste* Griff., *Opsiandra Mayo* (a newly discovered palm of Guatemala) and *Trachycarpus excelsus* Wendl.

Pinetum.

All representatives in the pinetum continue to make good headway and little room remains here for extension. Having regard to the low elevation of Peradeniya for this type of plant, it is probable that the limit of such Coniferae as will thrive here has been reached, the collections already including species of *Agathis*, *Araucaria*, *Cryptomeria*, *Cupressus*, *Dacrydium*, *Frenula*, *Juniperus*, *Podocarpus*, *Pinus*, *Taxodium*, and *Thuya*.

Floriculture.

Much progress in the development of the flower garden area has been made during the past year, and many new improvements inaugurated on the lines suggested in last year's report have been satisfactorily carried out. In view of the absence of suitable espaliers for support of the more handsome woody climbers of the gardens an erection has been made of a large solid archway on the east side and outskirts of the flower garden. The individual arches are 10 feet high and 13 feet wide, and are linked up with one another to form a long pergola of approximately 365 feet long. The arches are of steel tubes in cement base, and sufficient wire netting on sides and top for support of the climbers has been erected, both tubes and netting being painted green. A new 6 feet path running through the pergola has been metalled and tarred. Plantings of the most suitable climbers was made in July and August and includes among others, *Akebia*, *Congea*, *Camoensia*, *Chonemorpha*, *Faradaya*, *Odontadenia*, *Oxera*, *Petrea*, *Pereskia*, *Porana*, *Quisqualis*, *Roupellia*, *Solanum*, *Thunbergia*, and *Wagetea*. Most have already made considerable growth and should later present a fine show.

Improvements to the Liana drive borders were taken to hand and the opening of a new border along the whole of the west side of the flower garden has proceeded in conjunction with this. The new border consists of 15 feet extension forward of the old shrubbery here, the latter being given a vigorous thinning with topping of all overhanging branches to allow of the necessary light and air for the border. Plantings of perennial plants in group masses have been made, and the resultant colour should add much to the appearance of the flower garden.

The Liana drive borders and those of the Main Central drive have also been remade and renovated with satisfactory results. The arrival of the hosepiping indented for last year has had a most beneficial effect on the upkeep and appearance of these borders during the frequent dry spells.

Roads and Paths.

The motor traffic increases annually and urgent consideration had to be given to maintenance of the drives throughout the gardens. Through lack of necessary material obtainable in the gardens an outside contract was made for the thorough repair of the more damaged sections of drives. The Lake drive, portions of the South Garden drive, a portion of the Main Central drive, and the Liana drives have during the year been re-made with a sound foundation, and a thick layer of good road metal, and consolidated with gravel. The Palmyra drive has also been re-gravelled and shaped.

All edges of drives, as far as funds permit, are being lined with bricks, pointed with cement, as an edging, in preference to the former plain grass verge or line of border plants. This prevents irregularities in the road lines and moreover assists, by maintaining a better drainage system and consequent resistance to wash, a better maintenance of all drives thus dealt with. The drives so lined to date include the front entrance oval (formerly the palm group), the Liana drive, and the palm group at Great Circle.

Improvements.

The garden frontage improvements mentioned in last report have been further amplified by bringing the whole line of frontage into one uniform line, the banks being made up and shaped accordingly. The barbed wire fence was consequently re-erected and bungalow gates also brought into alignment. A hedge of Madras thorn, from seeds sown in situ, has been made, and a well formed hedge is already apparent.

The large palm group inside the main entrance gates, the contents of which had become much overgrown, unsightly, and of immense height, was entirely re-constructed. The palms, now all represented in the palmetum proper, were all removed and the area thoroughly trenched and dug over to remove all roots, &c. The area thus opened proved to be much out of alignment with the Main Central drive and the entrance gate, and necessitated the cutting away of a portion on the left, on entering, in order to form the true oval.

The elevation of the area was also lowered and brought into conformity with the purpose desired, *i.e.*, the formation of the large grass lawn area with groups of flower beds, the whole being turfed with entirely new grass. One large centre bed symmetrical with the oval area of lawn was made in centre with eight other beds on the fringes of the area, and the whole planted up with groups of the choicest *Canna* and the scarlet *Salvia*. The effect at the present moment, with all the bed contents in flower, is a striking one.

Propagation.

A few tree *Dahliae* received in early August from Australia were planted in the flower garden for trial. These commenced to flower at the end of November and have presented a fine display and should continue so for some weeks yet. A liberal amount of manure and much water are the essential requirements of this plant as tried here.

Two wardian cases of the more choice rare Ceylon plants were made up and despatched to the Director, Royal Botanic Gardens, Kew, at his request in August last.

The Allison and Armour Expedition spent approximately six weeks in the gardens during December, 1925, January and February, 1926, collecting plant and seed material for propagation and experiment, with special reference to palms and the *Garciniae*. In addition to the material already despatched by them to America a further four wardian cases of seedlings and some further seed was forwarded to them early May last through the American Consul.

Large demands, consequent upon advertisement in the *Government Gazette* and local papers for grape fruit plants have been experienced, some 720 plants having been sold and 340 issued gratis. The distribution of these plants should be remarkably wide as orders were invariably for twos or threes, no one order exceeding one dozen plants.

Of the four double coconut seeds received from Henaratgoda and planted in barrels early in the year, one has already germinated and bears a leaf shoot 12 inches in length. The seed planted direct in a bed in Mount drive 18 months ago, however has yet to show any plumule though the radicle has been formed for some considerable time.

The overhauling of the Economic Nursery has been undertaken and stocks of such as are not usually in demand have been decreased to make bed space for raising stocks of seedlings of all *Citrus*, &c., for budding purposes. The former fodder plot section in this nursery has also been levelled over to afford space, after gravelling, for pot plants of all such seedlings. It has now been decided to supply in future only grafted plants of *Citrus* such as grape fruit, oranges, limes, mandarins, and also of loquats, avocado pears, &c. All sales of such seedlings have lately been stopped and stocks for budding purposes grown on in quantity. A commencement has already been made on the budding of all citrus

Seedlings of *Taraktogenos Kurzii* and *Hydnocarpus Wightiana* recently raised have been potted up into large bamboo pots and are being grown on for planting at Henaratgoda and Experiment Station, Peradeniya. The number potted are 100 and 400 respectively.

General.

The new motor mower indented for last year arrived in February last and has been of much assistance in keeping the grass areas of the gardens in condition. The machine is a Ransome's 24-in. mower with a 3 h.p. air cooled engine and is capable of mowing up to 4 acres per day.

The drought experienced in August and September of last year resulted in premature flowering and fruiting of the Durian, Mangosteen, and Rambutan trees, and quite a fair crop, in quantity, was obtained in March and April. The fruits were however small, due to the dry conditions prevalent during February and March, and were not up to the average flavour. This premature fruiting did not, however, affect the seasonal fruiting of August-September, as quite a representative crop was then obtained from the trees.

Two trees of the Sago palm (*Metroxylon Sagu* Roxb.) introduced here in 1880 from Java flowered and fruited for the first time.

The rubber seed season has been a prolific one the nett proceeds realized and credited to revenue being Rs. 4,983. Of the total disposals of 923,550 seeds, Group I. represented 52,100, Group II. 41,900, and Group III. 829,550 seeds. This considerably exceeds previous year's disposals, when 714,400 seeds was sent out realizing Rs. 3,071 during 1925, and 114,000 seeds realizing Rs. 570 in 1924.

The South Garden pond frequently becomes conjested with the Lotus Lily (*Nelumbium speciosum*) and much labour is periodically necessary to keep this free. Latterly the water weed pest (*Hydrilla ovalifolia*) has reappeared after a lapse of ten years and is presumably due to the absence of Gourami, the latter having all been carried into the river at the time of the high flood in July last.

Heavy floods were experienced on July 27 last the river rising during that day to 29 feet above normal. This is only 3 feet below the 1913 record, and much damage was caused to the river side portions of the gardens. The main river drive was inundated to the depth of 2 feet at nursery end of Palmyra drive, many of the contents of the lower nursery beds were washed away, and considerable damage done to the river side yellow bamboo clumps and the fodder plots.

A survey of the gardens by the Survey Department was commenced in March and completed in June last.

A demonstration on rubber budding and spraying was given at the Royal Botanic Gardens on July 8 last, many visitors being present. Instruction in bud grafting of rubber has also been given intermittantly as required and a class of twelve conductors of estates assembled at Peradeniya from December 18 to December 22 for a four-day course in bud grafting.

The talipot tree at gate and three of the remaining five at old talipot avenue commenced to flower in July last all being in full flower in November. As the palm takes approximately 12 months from flower to produce ripe seed the specimens should present a striking effect for the next 12 months.

The Davie's tree site is improving rapidly and now presents a neat and tidy appearance. The flowering ornamental trees established include the Na, *Peltophorum ferrugineum*, *Cassia Fistula*, *Spathodea campanulata*, *Cassia nodosa* and varieties of *Bougainvillea*, and all are progressing well.

Office.

The work on the card index system of garden contents is proceeding, but much time and attention to detail is necessitated in the upkeep of this.

A revision of the Guide to the Royal Botanic Gardens, Peradeniya, has been undertaken supplemented with a collection of photos of the most striking trees and shrubs and is at present in the hands of the printer.

The letter register shows a total inward record of 5,744 and outward of 5,403. Much routine office work, numerous inquiries, advise on horticulture, and other requests is now experienced and calls for persistent attention in order to keep the work under.

The alphabetical list compiled last year was received from the Government Printer this year. The list is of invaluable assistance to the gardens.

Visitors.

The number of visitors, mostly from abroad, who signed the visitor's book kept at Entrance lodge, is 3,150.

Sales of Plants and Seeds.

The amount realized and credited to revenue for sale of plants and seeds from Peradeniya for the calendar year is Rs. 8,311·14 an increase of Rs. 1,688·58 over last year's receipts. This includes sale of rubber seed from Henaratgoda to the value of Rs. 2,425·75 and from Experiment Station, Peradeniya, of Rs. 1,781·25.

Value of plants, seeds, issued in exchange and free issues to Government institutions, &c., amounted to Rs. 2,225·25. Value of plants, seeds, cuttings issued free to school gardens amounted to Rs. 1,283.

METEOROLOGICAL.

The following is the rainfall for the year together with the average rainfall for the past 43 years. The heaviest rainfall in any 24 hours was 4·02 on October 15. Abnormally dry weather was experienced in August and September and again in December :—

Rainfall for 1926.

Month.	Inches.	Days.	Average for past 43 Years. Inches.	Days.
January	1·55	4	3·90	6
February	·58	1	1·69	3
March	2·52	6	4·72	7
April	9·94	9	8·20	12
May	21·05	24	6·13	11
June	7·34	19	11·01	17
July	10·84	17	8·25	18
August	3·37	8	6·08	14
September	3·85	17	6·98	15
October	8·60	15	13·45	18
November	9·65	14	10·46	16
December	2·01	8	8·35	12
	81·30	142	89·12	149

HENARATGODA GARDENS.

THE following extracts are from the report of the Assistant Curator, Mr. K. J. Alexander Sylva :—

Nursery.—A separate nursery of 70 by 60 feet was opened for raising *Hevea* stocks for budding purposes. The need of a small permanent structure for potting, packing, label writing, and other purposes is now being keenly felt.

Fernery.—This section though very limited has been greatly improved by the addition of a good many named ferns and other shade-loving plants. Several tall growing ferns have been planted on the outskirts of the Fernery to demarcate the section. A good many epiphytic ferns and orchids have also been fixed on the trees.

Brownea Avenue.—An avenue of *Brownea grandiceps* was planted on either side of the drive recently straightened out and extending from East to West Circular drive.

Flower Garden.—The western side of the section bordering the drive to the office, occupied by a row of specimen ornamental creepers, has been improved by fixing steel pipes fitted with three strands of wire for the creepers to trail on. Free flowering *Ixorae* have been interplanted in the row of flowering creepers to make it more showy. Three iron pergolas have been erected over the paths in flower garden and furnished with *Porana volubilis*, *Aristolochia labiosa*, and *Antigonon leptopus var alba*. The collection of plants in the conservatory has been improved with named collections of Orchids, Ferns, and *Begoniae*. Owing to the limited space in the green house several plants were removed and placed on benches made for the purpose

Fruit Collection.—A few seedling plants of *Citrus*, more especially the Pomelo, planted out last yea have been budded with scions of good sweet orange of known mother trees. The young grafted mangoes have been subjected to periodical attacks by *Mylocerus sp.* a leaf eating insect which has caused considerable damage to the young growth by defoliating the plants and thus retarding growth. Steps have been taken to remedy this.

Coconut Varieties.—The five varieties of coconuts reputed to be high copra yielders received from Gate Mudaliyar A. E. Rajapakse in the latter part of July, 1924, and set out on raised ridges on the low-lying ground adjoining the stream have made good progress.

The holes were dug 3 feet by 3 feet by 3 feet and filled 2 feet 6 inches of the depth with a compost of farmyard manure, leaf-mould, and wood ash. The nuts were placed 6 inches below the surface level, in three different positions to ascertain the best position that would ensure better germination, viz. :—

Lot No. 1.	Lot No. 2.	Lot No. 3.	Lot No. 4.	Lot No. 10.
Upright	Horizontal (after testing in water)	As No. 2	Upright slightly inclined	As No. 1

The germination of all lots, with the exception of No. 4 was satisfactory, the latter taking a slightly longer period to germinate and make headway. This slow growth is still to be observed on all the nine plants in the No. 4 lot, making a very poor comparison with the rest. The average height of the No. 4 lot is 6 feet, whereas the average height of the rest of the lots is 10 feet.

Chaulmoogra.—The establishment of a small plantation of Chaulmoogra (*Taraktogenos Kurzii* B1) has been made. A portion of the west Mookalana jungle about ¾ of an acre in extent was cleared and 46 plants of these were planted out in September, quinqunx, at 25 feet apart. Within the three months the plants have generally made good progress and the average height is about 12 inches.

Cuttings of *Gliricidia maculata* have been planted at intervals in order to secure the necessary shade and protection from wind at their early stage of growth. The whole area is sown with seeds of *Vigna oligosperma* to serve as a ground cover.

Fibre Collection.—The triangular plot of grass at the west end of the young *Brownea* Avenue was raised with soil and studded with rock stones in the form of a rockery and planted with an assortment of fibre yielding species as follows :—

Agave miradorensis, A. Morrisii, A. Woodrowii, A.ri gida, A. tequilana, A. Morrisii, vars variegata, A. rigida var elongata, Furcraea gigantea var variegata, F. watsoniana, F. cubensi. F. macrophylla, Sanseviera Laurentii, S. cylindrica, and *S. guineensis.*

Screw Pine Collection.—A small section by the East Circular drive to left of Coco-de-Mer tree was planted with the following species of *Pandanus :—*

P. Leram, P. sanderi, P. tectorius, P. odoratissimus, P. foetidus var. racemosus, and *P. zeylanicus.*

The Summer Arbour which stood at the extreme upper end of the great lawn was not much used by the visitors to the gardens owing to its exposed position and was transferred to a more suitable spot close to the coconut arbour.

RAINFALL.

	1926.	
	Inches.	Days.
January	7·68 ..	8
February	— ..	—
March	4·74 ..	5
April	4·50 ..	11
May	23·35 ..	24
June	15·87 ..	29
July	18·55 ..	24
August	5·61 ..	16
September	11·75 ..	19
October	12·86 ..	24
November	4·64 ..	14
December	1·66 ..	8
	111·21	182

The heaviest fall in any 24 hours was 9·05 on May 14.

RECEIPTS.	Rs.	c.
The amount credited to revenue from sale of plants, &c. ..	740	90
The amount credited to revenue through Royal Botanic Gardens (rubber seeds)	2,425	75
The amount credited to revenue through Experiment Station, Peradeniya, sale of rubber	240	24
	3,406	89
The value of free issues to Government institutions ..	132	0

T. H. PARSONS,
June 25, 1927. Curator, Royal Botanic Gardens, Peradeniya.

THE GOVERNOR'S AND COLONIAL SECRETARY'S GARDENS.

The Queen's House Garden, Colombo.—This garden has been maintaned in good order, all *Canna* and other beds being regularly manured and replanted and many of the borders overhauled, pruned, and manured. The condition of the pot palms and ferns have been well maintained and new tubs supplied to many of the large palms.

The pergola of *Tristellateia* on south side of the gardens screening the outbuildings has been extended with satisfactory effects.

Many branches of the large *Ficus* (*Ficus altissima*) having become overgrown and encroaching on the building were cut back, at the same time allowing more light and air to this portion of the house.

The roads and paths have been kept in good order by the Public Works Department, who have also attended to and repaired the leakage of the fountain.

The Temple Trees Garden, Colombo.—This garden has been much improved, all flower beds and borders being regularly manured and attended to. New beds have been made bordering the Entrance drive, and planted up with showy *Cannae* and is very effective. The Fern house having become delapidated and unserviceable has been dismantled and the site utilized for an extension of the herbaceous border on this side. The herbaceous border has been widened and reshaped and planted with assorted perennials.

A tennis court was constructed by the Public Works Department on part of the back lawn and flowering climbers have been planted to furnish the wire netting screen. A few old and superfluous trees have also been removed from this portion of the gardens.

The King's Pavilion Garden, Kandy.—Improvements in these gardens have been undertaken and others are at present in hand. A small tree of *Agathis robusta*, the Queensland Kauri Pine died of attack by root disease and was felled. A specimen of the bowl was forwarded to the Museum, Peradeniya, but the timber properties of the tree could not be properly tested, the tree not being a matured one.

Supplementary to the remaking and widening by the Public Works Department of a section of Lady Horton's drive running through the gardens, alterations were here undertaken to cover the exposure thus made, and quick growing flowering trees of *Spathodea* and *Solanum* have been planted in addition to *Hibiscus* hedges and further screens of *Gliricidia maculata*. The fodder plot in the vicinity was also overhauled and replanted, and the garage surroundings levelled over and turfed.

The border along boundary on the east side has been extended to join the pergola walk, and at the same time affords a further screen to the house. A flight of steps at junction with pergola walk is necessitated and is in course of construction.

The plot opposite the Head Gardener's quarters was in March last thoroughly trenched and manured, and planted up with plantains, pineapples, and papaws. The papaws only have to date fruited and the plantain and pineapples have yet to fruit.

The Lodge Garden, Kandy.—This garden has been maintained in very satisfactory order throughout the year. The tennis court is in poor condition and needs overhauling, whilst the boundary fences are also in need of repair. The borders and beds were replanted and manured, and the lawns weeded and regularly mown.

Queen's Cottage Garden, Nuwara Eliya.—The Curator, Hakgala, Mr. J. J. Nock reports :—

Several improvements to this garden have been carried out during the year and the garden and grounds have been kept in good order.

Two rows of *Cupressus* plants, supplied from Hakgala and numbering 650, have been planted along the bank above main road, to form a hedge.

The grass bank on upper side of the *Cryptomeria* Avenue has been resloped and turfed. and new beds have been made in this area and planted up with perennials.

Plants of *Cupressus* and *Acacia melanoxylon* have been planted on the bank above upper pond, to form a screen to hide the dhoby's quarters. A row of *Melaleuca armillaris* has also been put in along the bund of this pond for the same purpose.

Many improvements have been made to the surroundings of the Greenhouse. In this area a large number of beds have been made and planted up with Carnations, *Agapanthus*, &c.

An arch has been erected at the top of the path leading past the Greenhouse and rambler roses have been planted to cover same. New beds have been made round the arch and planted with *Gladiolus*, *Agapanthus*, &c.

A hedge of *Artemisia vulgaris* has been established to divide the vegetable garden from the cut-flower section.

New fences have been erected near the green house, and Passion Fruit planted for trial on same.

The pond in the vegetable garden has been emptied and cleared up, and this area planted up with Arum lilies.

The *Cupressus* on bank below the flower garden have been thinned out, and the bank below Aid-de-Camp's office planted up with a collection of trees supplied from Hakgala.

The drive leading up to the house, from the top of the *Cryptomeria* Avenue, has been straightened and remade. This alteration has considerably improved the drive, and has done away with an unnecessary and awkward bend. The verges and lawn on either side of the drive have been relaid.

The blue water lilies in all the ponds were weeded out twice, during July and December.

Special attention has been given to the upkeep of lawns and the scything of long grass round the ponds.

The Lodge Garden, Nuwara Eliya.—The Curator, Hakgala, Mr. J. J. Nock reports :—

The *Paspalum* lawn at the back of the house has been remade as it was not coming on well owing to the gravelly soil. The soil has been removed to a depth of 18 inches to 2 feet by the Public Works Department who used same for gravelling the drives and paths. Good soil has been replaced by the same Department and the *Paspalum* has been replanted.

A small peice of jungle below the upper vegetable garden has been cleared and is to be used for growing cut-flowers.

A long border averaging 5 feet in width has been made along the path in lower vegetable garden and planted up with perennials, &c.

A cement drain has been made by the Public Works Department from the bungalow-keeper's quarters to the pond below lower vegetable garden.

The Euphrosyne rose round the circular mound in front of the house has been removed, together with the arches and trellis work on which it was growing.

The hedge of the upper vegetable garden has been extended to hide the back premises of the bungalow-keeper's house.

Creepers of various kinds have been planted to cover the fence round tennis court, and a new plant shed erected near the stables.

The Euphrosyne hedge along the long border on side of drive has been removed and the border well manured and planted up with perennials.

A small portion of the vegetable garden, where a few pear trees were cut out, has been opened up and planted.

T. H. PARSONS,
January 25, 1927. Curator, Royal Botanic Gardens.

HAKGALA BOTANIC GARDENS.

ROCK GARDEN.

THIS has been attractive throughout the year and was thoroughly overhauled during November and December when the whole garden, including the Ceylon section, was replanted.

A number of plants in the Ceylon section have been weeded out and have been replaced by those of a more showy and interesting nature.

Among the indigenous plants which have become well established and which have flowered well, the following may be mentioned :—*Exacum zeylanicum, Viola serpens, Anotis nummularia, Spilanthes Acmella, Parochetus communis, Impatiens Hookeriana, I. leptopoda, Ranunculus Wallichianus, Scutellaria oblonga*, &c.

In the upper section the following have flowered well :—*Thymus serpyllum, Erica* sp. (from the South of France) Black *Violae, Linaria repens, Fragaria indica, Erinus alpinus*, &c., besides the usual annuals such as *Linariae, Phlox*, &c.

Most of the plants were relabelled during the year.

The bed of succulents on the lawn near summer arbour has been slightly enlarged and the front of same replanted.

BULB GARDEN.

A good show of flowers has been maintained during the year.

The *Dahliae, Gladiolus, Montbretiae*, and *Tigridiae* imported from Holland and the Liliums from Japan have flowered very well. Lilium auratum produced flowers measuring 8 inches across.

Another consignment of bulbs is expected early in 1927, and it is intended to order yearly, a few bulbs from Holland and elsewhere in order to work up a good collection of bulbous plants of all kinds.

The creepers round the garden are gradually covering the pillars and rails and have flowered well.

The pond received a thorough cleaning during December and the water lilies have been replanted in tubs.

A 15-lb. mirror carp, from the pond in the Nuwara Eliya Park, has been placed in the pond.

NURSERY.

A good deal of work was done early in the year in connection with the improvements to the nursery.

The upper terrace near the Rock Garden has been levelled and well drained, and tin-edged beds neatly arranged on same to hold all the basket plants.

The old rubbish pit has been filled in, and this area planted up with healthy plants of Mountain Papaw and the two kinds of tree Tomato.

The fence on the north side has been put into good order, the barbed wire being fixed to the row of *Cupressus* trees which were planted for this purpose a few years ago.

During the year 2,300 conifer plants in baskets were supplied.

Drives and Paths.

The Upper drive, between the Rose Garden and end of *Cupressus* Avenue has been remetalled and put into good order. Rough sections of the lower drive have also been attended to.

Alterations to the corner at the end of the *Cupressus* Avenue were completed in June. The corner has been benched and a retaining wall built. The benched portion has been levelled and turfed. This once blind and dangerous corner has been greatly improved as far as safety to traffic is concerned.

Greenhouse.

The wooden staging in one half of the Greenhouse has been replaced by a concrete staging by the Public Works Department.

Tuberous rooted *Begoniae* and *Achimenes* imported from Holland have flowered very well, and it is hoped shortly to be able to distribute bulbs of the latter.

A consignment of *Chrysanthemum* spp. is expected from England early next year.

Begonia Lloydii received from England last year have again flowered exceptionally well.

The tuberous-rooted *Tropaeolum* (*T. tuberosum*) imported from Holland has flowered well.

Area Opposite Rose Garden.

This area has been cleared, sloped, and planted up with *Paspalam dilatatum* which is coming on well.

The building of the retaining wall along the path from drive to cooly lines has been completed.

The sides of the stream below bridge opposite the Rose Garden have also been built up.

A new road to the rubbish yard near the plant sheds is at present under construction, and has already been metalled.

Ponds.

Both the lower and upper ponds have been greatly improved during the year and the surrounding shrubberies have been overhauled and replanted and provided with drains.

The bund of the lower pond has been cemented and raised about a foot to bring it level with the drive and a *Paspalum* lawn, with three flower beds, has been made between the bund and drive.

The outlet has been raised a few inches and a retaining wall built all round the inside of the pond to keep up the bank which has been planted up with *Arum* spp., *Agapanthus*, *Crinum* spp. *Begoniae*, &c.

Round both ponds a new path has been made, that of the lower being edged with *Scutellaria oblonga*.

A rustic bridge, built on rails embedded in concrete, has been made across the upper end of the lower pond.

A new retaining wall has also been built round the inside of the upper pond, the wall varying in height from 18 inches to 4 feet.

A ledge 18 inches wide has been made at water level and planted up with *Alocasia macrorrhiza*.

The lawn near the summer arbour has been levelled and extended and the main inlet drain covered over.

Laboratory.

A cement-pointed stone drain has been built by the Public Works Department round the laboratory and the steps leading up to the building rebuilt.

The roof is leaking badly and it is hoped that a permanent roofing of corrugated iron will be provided as soon as possible.

General.

The drains round the bungalow have been put into good order by the Public Works Department and general repairs to the Foreman's and Nurseryman's quarters have been attended to.

The stream running from near the old walled nursery, through Fernery to Lower drive has been widened and built up where necessary. On January 26 this stream overflowed during a fall of 4 inches of rain in two hours and considerable damage was done to the Rock Garden, Fernery, and drives.

The tank in the Fernery which was leaking badly has been put into good order and other tanks in the gardens have received similar attention.

The apple tree in the area opposite Rose Garden produced a good crop of fruits during September-October. In all about 100 fruits were gathered. The tree was enclosed with wire-netting to prevent pilfering—the chief trouble in fruit growing in Ceylon.

A tank has been made below the bank in the lower flower garden to take the place of the one near Rose Garden which has been filled in.

Attention has been given to the removal of Loranthus from trees and shrubs.

Nine new varieties of *Nymphaeae* have been received from Messrs. Sutton & Sons, in exchange for seeds, and have been placed in the pond in Bulb Garden. One of these flowered in June, but the flowers were stolen as soon as they appeared.

Twenty-five plants of *Melaleuca leucadendron* var. *minor* (the Cajuput Oil Tree) have been planted out on the patana above Camphor plantation.

Rhizoctonia bataticola has been the cause of the death of three trees in the Rock Garden during the year. The trees being *Acacia elata*, *Cupressus macrocarpa*, and *Tristania conferta*. All these trees died quite suddenly.

Fernery.

The site on which the old meteorological shed stood has been sloped and planted up with a collection of ferns and *Begoniae*.

Part of the stream through the fernery has been rebuilt, owing to damage by floods during January.

The bridges have been repaired and put into good order and the fernery kept tidy.

FODDER GRASS TRIALS.

11. A plot, approximately 1½ acres in extent, has been opened up on the patana beyond the timber clearing for trials with fodder grasses.

Up to the end of the year the following grasses received from the Experiment Station, Peradeniya, have been planted :—Napier Grass (*Pennisetum purpureum*), Efwatakala Grass (*Melinis minutiflora*), *Paspalum Commersonii*, Guinea Grass (varieties A and B), and Upright and Prostrate *Paspalum* (*Paspalam dilatatum* vars).

Seed of the following has been sown :—Poona Lucerne, Subterranean and Egyptian Clover, and Sulla.

The Lucerne seed germinated well, but the seedlings died shortly after germination.

Subterranean Clover so far looks promising.

Sulla has germinated well, but the Egyptian Clover does not appear to be making much headway.

It is yet too early to report on the grasses which have been planted only recently.

INTRODUCTIONS.

Plants and seeds have been received from the following :—The Director, Brignoles Botanic Station, France ; the Director, Arnold Arboretum, Harvard University ; the Institute of Applied Botany and Cultures, Moscow ; Miss D. Oswell, Ailsa Craig, Muizenberg, South Africa ; Messrs. Sutton & Sons, Reading, England ; Mr. W. H. Vincent, Minnawarra, Peppermint Grove, Western Australia ; the Director, Botanic Gardens, Victoria, Australia ; the Government Gardener, Gardens Department Perth, Australia ; the Director, Melbourne Botanic Gardens, Australia ; the Director, Botanic Gardens, Buitenzorg, Java ; Mr. O'Brien, Nilgiris, India.

And from the following in the Island :—Mr. C. H. S. Syvret, Abergeldie, Roselle ; Mr. John Horsfall, Craig, Bandarawela ; Mr. R. H. Coombe, Poonagalla, Bandarawela ; Miss M. E. Tilly Galkandawatta, Talawakele ; Mr. K. L. Gordon, Rappahannock, Uda Pussellawa.

REVENUE.

The amount realized by sales of plants and seeds for the twelve months ended December 31 was, Rs. 1,284·59, and for the twelve months ended September 30, Rs. 1,366·76.

The value of plants and seeds issued gratis or in exchange to Government institutions, &c., was Rs. 597·55.

METEOROLOGICAL.

The number of inches of rain recorded during the year was 94·11, falling on 213 days, compared to 117·43 falling on 228 days during 1925.

The wettest month was May, with 16·43 inches, and the driest month ebruary, with 0·36 inches.

The highest temperature in the sun's rays was 157·6 on February 21, compared to 154·1 on July 31 of the previous year.

The lowest temperature on the grass was 33·3 on January 19, compared to 36·7 on January 26 of 1925.

NUWARA ELIYA GARDEN.

REPORT FOR 1926.

SEVERAL improvements have been made to the garden during the year, the chief being the opening of a new flower garden on the old nursery site. This has been sloped and turfed and 17 new beds have been made and planted up. A new entrance to this garden has been made through the shrubbery from the Main drive near the " Peace Tree " (*Araucaria Bidwillii*).

The path along the top of this area has been lowered and a new grass bank established along same. The soil removed during these operations has been used for filling up depressions under the *Acacia melanoxylon* trees on the north of the garden.

The turf removed in cutting out the beds has been used for turfing the bank above the garden and for patching up the lawns.

The low-lying lawn below the drive near bridge has been levelled and returfed. Four large beds have been made in this area and planted up with *Agapanthus*, *Arum* spp., &c.

A box hedge has been planted on either side of the path leading to the Memorial to join up with the *Cupressus* hedge.

The boundary along Park road has been tidied up and 150 plants of *Cupressus* put out to fill vacancies.

Attention has been given to the cutting of long grass under trees and a larger area is now being scythed and mown regularly.

The Island in the pond has been tidied up and a few plants of *Eucalyptus Globulus* put out on same.

The poorer specimens of *Cupressus Lawsoniana* growing on the slope between Park road and the fountain have been cut out. Three large beds have been made on this slope and planted up with *Calliandra Guildingii* which flowers so well in Nuwara Eliya, and *Cassia floribunda*, a recent introduction.

During October-December, the chief work was in connection with the sloping of the bank behind the summer arbour near Jubilee Oak Tree, and the filling in of the swampy area under the trees in *Cupressus* Avenue. The course of the path to the north of the avenue has been altered and the path remade.

The blue water lily in the pond has been weeded out and special attention is being given to the eradication of this aquatic.

JAMES J. NOCK,
Curator, Hakgala Botanic Gardens.

January 13, 1927.